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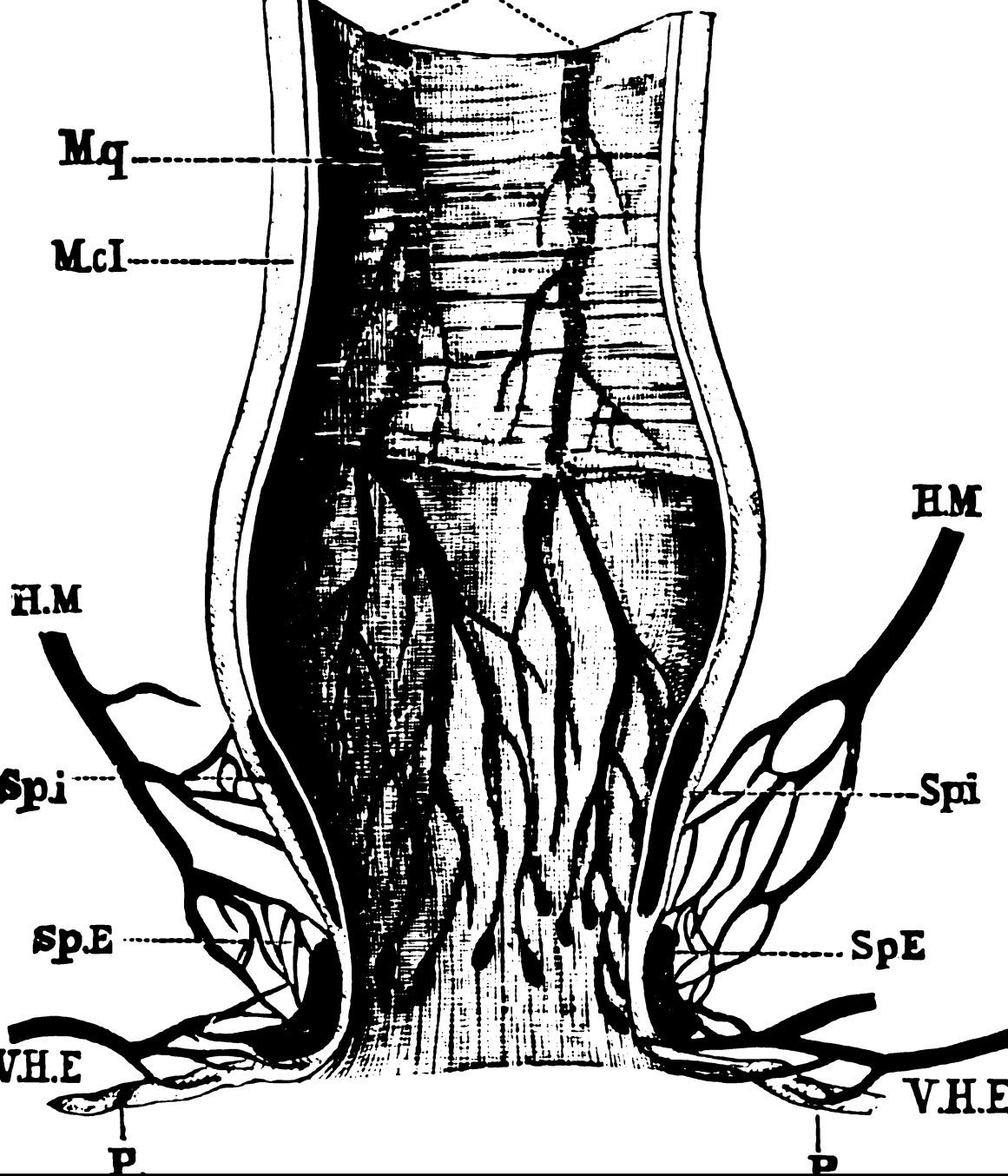
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Hemorrhoids and Other Non-malignant Rectal Diseases

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HEMORRHOIDS

AND OTHER

Non-Malignant Rectal Diseases

DIAGNOSIS AND TREATMENT

BY W. P. AGNEW, M. D.

FOURTH EDITION

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INTRODUCTORY.

IN preparing this manual, the object will be to give in plain and comprehensive language, as briefly as possible and with little discussion, a few general rules, which, if even approximately observed, can but lead to success in the treatment of all non-malignant rectal diseases commonly known, and for which the general practitioner will not infrequently be called upon for relief.

Hemorrhoids, being by far the most common among this class of ailments in private practice, and the greatest bone of contention relative to the best manner of effecting a radical cure, will take precedence in our consideration, and receive the attention that their importance and dignity justly merit.

It is an indisputable fact that until within the past few years an operation for the radical cure of hemorrhoids was considered so formidable an undertaking that their treatment, outside of palliative measures, was almost entirely eschewed by the general practitioner.

"No fact is better known to the profession," says Dr. S. S. Turner, U. S. Army, "than that nearly all men, doctors not excepted, will suffer more than the pain and inconvenience of a thousand operations, rather than undergo an operation for removal by any of the methods in vogue. The fame of some specialists who are distant enough to 'lend enchantment to the view,' will generally induce people of large means, when life has become something of a burden, to place themselves under their care and take what they offer; but, unfortunately, piles are not limited to people of large means. The greater number of sufferers must take what the general practitioner can give, and will not take the cutting and crushing operations until compelled by dire necessity, and are only too glad of a less heroic alternative which offers them hope of relief. For this body of sufferers the operation by carbolic acid injection offers a means of relief to which they will readily submit. In a sufficient number and variety of cases to justify me in having an opinion upon the question of its merits, I have never met with anything which I have regretted."

When Allingham, Mathews, Kelsey, Andrews and others uttered their pronouncement in favor of their choice of operations and against other methods, it was done, no doubt, with firm belief and honest intent, and in strict accordance with the inability of these gentlemen to understand "that

the opinions of mere men, however venerable by age, are but a sandy base. The people of the present time are not given to echo the sentiments of a master. Nature's laws and nature's facts alone are able to stand the rigid scrutiny to which the sentiments of men, in physical science, are now so unreservedly exposed."

Concerning the relative merits of the "so-called" more scientific methods of cure advocated by the authors named and other leading specialists, known as the circular excision, the clamp and cautery, and the ligature operations, the following quotations appear significant:

Of the circular excision, Dr. S. S. Turner says: "Mr. Whitehead's operation is so self-evidently 'bloody, tedious, and difficult' that no general practitioner and few specialists will care to undertake it. No amount of assertion by Mr. Whitehead in favor of its simplicity will deceive anyone who has studied anatomy."

Of the clamp and cautery, with its attendant pain and sizzling of human flesh, dangers of an immediate or a severe secondary hemorrhage, extensive sloughing or stricture by contraction of tissue, Allingham says: "In my opinion, this has little to recommend it. As far as my most careful researches have led me to a conclusion, it is quite six times as fatal as the ligature properly and dexterously applied. In one hundred and ninety-five cases operated on by me by means of the clamp and cautery, I have had two deaths."

Of the ligature, Dr. F. L. Haynes says: "I have frequently made Allingham's ligature operation. It is easy and effectual, but followed by retention of urine and great pain, lasting in some cases seven days. One of my cases died from lockjaw, and a similar result followed in a case in the Episcopal Hospital of Philadelphia. The great objection to this and other operations is that they *are* operations and involve the use of ether and rest in bed. Do we possess in carbolic acid a safe, speedy, and painless cure for hemorrhoids?"

With the foregoing stubborn and uncompromising facts relating to the old methods' treatment confronting us on the one hand, and a full appreciation of the superiority, the simplicity, the safety, and the certainty of the treatment by carbolic acid injection commending itself to us on the other, no further explanation will be required, nor is an apology deemed necessary for the adoption and recommendation of the latter method of cure, and an effort is made in this little publication to point out in an easily understood and a practical way what has been acquired by personal observation and experience, and, all in all, believed to be the best manner of applying this truly scientific and greatly superior method.

"The treatment of hemorrhoids by carbolic acid injection," says Dr. J. W. Hallum in a communication to the *International Journal of Surgery*, "is a method that I hesitate to present and advocate, not because of any of its defects, but on account of its opponents. To Colles, of Dublin, has been accorded the honor of first treating piles hypodermically in 1874. Dr. S. H. Sturgeon, of this country, claims that he reported cures by the injection of carbolic acid, in the *Medical Brief* for 1874. There was but little attention given the subject before Dr. W. P. Agnew, of San Francisco, reported his cures by this treatment in the *Toledo Medical and Surgical Journal*, in 1877. In 1880 Dr. Blackwood, of Philadelphia, reported his cures by it in the *New York Medical Record*. Since that time much has been written upon the subject, therefore I do not expect to introduce anything entirely new, but I do hope that I will be able to interest some of you, at least those of you who have not been making satisfactory cures of this very common disease.

"It is not necessary to be a specialist in order to be successful in the treatment of piles by this method. By it 'quacks' have succeeded admirably and made inroads on our practice. The radical cure of this disease is comparatively unknown to the average physician. Are we not too often neglecting the common disease for the more rare? Therefore I offer no apology for claiming your time and attention for a few minutes. It is not the object of my paper to give definitions, symptoms, and varieties of hemorrhoids. I know of no reason why I should discuss the pathological anatomy of pile tumors, for they are all alike amenable to this treatment, whether of recent or of long standing, venous or arterial origin, blind or bleeding, external or internal. For the last ten years this plan of treatment has never produced any alarming symptoms, no secondary hemorrhage and no sloughing other than the pile itself. By it I have yet to report my first failure. By this method Drs. E. J. Denis, of Kansas City, Fred R. Boyd, of St. Joseph, Mo., Q. A. Shuford, of Tyler, Texas, W. L. Rodman, of the University of Kentucky, have cured hundreds, while Drs. W. P. Agnew, of San Francisco, Kelly, of Cincinnati, Ives and Davis, of Chicago, Monroe, of Louisville, and E. F. Hoyt, of New York, have each cured thousands of cases."

Many of the profession seem to forget, when reference is made to the "treatment of hemorrhoids by injection," that the expression as commonly understood is vague and indefinite, and may mean the use of any one of a number of different preparations applied in different ways, and that the failure or unsatisfactory action of one combination should not be taken as a criterion for all. There are also many, I am constrained to believe, who, from

lack of information, and a want of experience in the examination and treatment of hemorrhoids, are unable to discriminate, in many cases, between an extruded or everted portion of the bowel and a hemorrhoid, and are just as likely to inject the preparation they have selected to use into the tissue of the bowel as a pile, particularly when the pile rests above the protruded portion of the bowel and is out of sight. This I am led to believe by noticing the erroneous ideas of otherwise competent practitioners while examining their cases with them, and also in treating physicians for the disease and hearing them express themselves, and I am further strengthened in this opinion by recalling my first experiences in treating the complaint. I more than once injected the solution into the tissue of the bowel, and had at one time the same mistake practiced on me by a physician who claimed familiarity with the rectum and its diseases. He did not touch the pile, but injected the solution into the bowel structure some distance below, which resulted in producing a slough with but little soreness, and a shortening of the bowel a trifle on that side, so that it does not now evert or roll out as much at stool as it does on the other side. The pile was unharmed by the operation, and remained intact.

The fact is the treatment of hemorrhoids by carbolic acid injection has not been placed before the profession upon a practical and scientific basis, nor has it been fairly represented, but on the contrary is hampered by undue prejudice and misunderstanding, and made responsible for the results growing out of the defective knowledge of those seeking its adoption. A review of the literature of the subject in support of the method, shows that it is a product principally of the unlettered, and is not overburdened with theory nor replete in scientific deductions. Of the few books and pamphlets that have been published, including the "Secret Systems" of the itinerants, none have come to my notice that give a rationale of the principles involved in the process of cure, or complete instructions in the technique of an operation and the management of a case generally.

These drawbacks, together with a diversity of opinion concerning the different combinations and strengths of carbolic acid to be used, with reported accidents in some instances and failure to cure in others, all of which have been magnified and enlarged upon by the old methods' writers and specialists to a degree of intimidation, have not favored the general adoption of this easily acquired and successful plan of treatment in an apparently doubtful and unsettled state.

More might be said here in explanation of the slow progress of a thing of true worth and merit, did time and space permit, but suffice it to say that the dignity of physic and surgery, and the education and skepticisms of the laity, demand that something more than petty contentions and pro-

feesional bickerings hinder the employment of a method in the treatment of a disease where the results and comparisons are so unmistakable.

The successful treatment of hemorrhoids naturally leads to the investigation and treatment of other forms of rectal trouble, by virtue of the close relationship existing between the different kinds of diseases affecting the rectum, one disease of this organ often being mistaken from the subjective symptoms for another; therefore, all non-malignant rectal diseases have received a fair share of notice in the present volume, giving the most improved and rational plans of treatment to date, which, it is hoped, will the better enable the ethical physician to forestall and root out the itinerant and advertising local specialist, as well as to compete with his wide-awake fellow practitioner, and in this way retain his own clientele, secure the fees arising therefrom, and maintain his social standing and dignity in the community in which he resides.

"There is no organ," says Dr. S. T. Yount, "that is so prone to become diseased as the rectum. There is no class of cases so little understood and treated as rectal diseases. There are no diseases so annoying and painful, and at the same time producing such dire results on the general system, directly and reflexly, as rectal diseases. For years rectal surgery has been principally in the hands of itinerants, whose remorseless greed for money has caused them to treat for revenue only, and to play the vampire on all who fall into their clutches. It is high time for the general practitioner to gather up all the information possible, in order to be able to treat all patients suffering from rectal disease, and thereby drive the itinerants back to their previous occupation of tilling the soil."

In none of the books heretofore published on the subject of rectal diseases, do we find suitable instructions whereby the beginner may knowingly and intelligently engage in a rectal examination—what to expect, where and how to find it, and how to pursue each succeeding step in applying the treatment after a diagnosis has been reached. Writers either presume too much on the part of those who have not had experience, or are so habituated to the use of general anæsthesia in accomplishing the objects sought, that milder means have been seriously neglected. Finding many otherwise well-informed practitioners at a great disadvantage in the examination and conduct of a rectal case, was one of the leading incentives that resulted in the preparation of the following few pages.

HEMORRHOIDS, OR PILES.

THE division of hemorrhoids into internal and external is naturally suggested by their observation and study, and clearly defined by designating all hemorrhoidal tumors originating above and within the grasp of the external sphincter as internal, while those situated external to, or outside of, the external sphincter, when this muscle is closed and the bowel not protruded, are external.

The statement that hemorrhoids are nothing more nor less than a varicosed condition of the rectal vessels, is true only in so far as it is applicable to their incipient stage of formation. The first tissue change that takes place leading to the development of a hemorrhoid, is the dilatation, stretching, or bulging out, as it were, of the coats of one of the hemorrhoidal veins, venules, or arterioles, at its weakest and least protected part, forming a bulb or sac-like protuberance beneath the mucous membrane or skin, and superinducing an infiltration and a thickening of the cellular tissue in connection with the vessel. The causes remaining in operation, this sac-like protuberance becomes more enlarged, painful, and inflamed, from a continuous pressure of blood within its walls and other irritating influences without, until relieved by palliative treatment or the unaided efforts of nature.

After the immediate exciting causes have been removed, the sac shrivels, or contracts, but is left somewhat enlarged and its walls thickened, holding possibly a clot of blood within its cavity or some having been forced out through a breach, producing an extravasation. Successive attacks will so change the walls and surrounding structure of the sac by hyperæmia and the deposition of plastic material that in time it becomes an organized mass, or tumor, made up of fibrous and spongy connective tissue, and sustained by a complete circulatory system of small arteries, veins, and capillaries, quite unlike its primitive state of development, and varies in kind, shape, and locality according to the causes and peculiarities belong-

ing to each individual case. Fully developed hemorrhoids are, therefore, something more than varicosities; they are thoroughly organized tumors.

There are three distinct varieties of internal hemorrhoids, which have been appropriately named, from certain well-marked features characterizing each, as the capillary, the arterial, and the venous, and all may be present in the same person.

THE CAPILLARY HEMORRHOID is a small, flat, slightly elevated, raspberry-looking growth, having a thin, delicate covering, and a spongy, bleeding surface, with a capacity for yielding, compared with its insignificant size, large quantities of arterial blood on the slightest provocation. Indeed, this kind of pile may appear as nothing more than an obscure efflorescent patch, with the one symptom of daily hemorrhage, either little or much. In structure it consists principally of a congeries of hypertrophic capillaries, bound together with spongy connective tissue, resembling that of an arterial nævus, and is not painful, and does not prolapse, unless accompanied by other larger tumors, or a weakened condition of the bowel.



FIG. 1.

Section of hemorrhoid showing internal spongy structure. (Esmarch.)

By the application of caustics, powerful astringents, and the lapse of time, the delicate mucous membrane covering the capillary hemorrhoid becomes firmer, smooth, and shiny, at the same time the capillary network disappears beneath, arresting the bleeding from the surface, the vessels feeding the growth enlarge and extend, the

connective tissue becomes more abundant by the exudation of plastic lymph, and, in accordance with the theory of the development of hemorrhoids generally, a fully formed arterial hemorrhoid may be evolved from one of the capillary variety.

THE ARTERIAL HEMORRHOID is a bright red, strawberry-like, sensitive, vascular tumor of a pronounced arterial type, with the arteries and veins freely anastomosing, and is particularly the irritable pile, subject to erosion, prolapse, and hemorrhage. In common with the first variety, it seems to arise entirely on the arterial side of the cir-

culatation, and may take its origin independently or proceed from the capillary tumor by a process of change as described in the preceding paragraph. The artery entering the base at the upper part of an arterial hemorrhoid may be large, and felt to pulsate with as much force as the radial.

The arterial pile sometimes tends to a peculiar sort of a spontaneous cure by a slow hardening process, which begins at its apex by an obliteration of the vessels from a contraction and a solidification of the fibrous tissue, leaving a hard, incompressible, pyramidal-shaped substance, flattened from above downward, projecting toward the opposite side of the bowel, which it may prod during a motion, and is wholly destitute of circulation. This relic might with propriety be called a horny papilla. A tumor in which the hardening process has been only partially completed, is called an indurated pile. Other forms of internal hemorrhoids may undergo a similar degenerative change by ultimately subsiding into an indolent state, persisting as hard, shot-like tumors containing clotted blood. The clot occasionally undergoes a calcareous change and becomes converted into a phlebotite, or vein stone.

THE VENOUS HEMORRHOID is the passive tumor, variable in size, shape, and texture, with the venous element largely predominating, giving it a bluish and a sluggish appearance. It may be a small, round, smooth tumor, or a large, undulating, oblong mass extending entirely across the bowel, is not prone to bleed, nor sensitive unless inflamed or strangulated by the action of the sphincters, and is certainly by far the most common variety. This is the form of hemorrhoid that results from an obstruction to the circulation of the liver and abdominal viscera, such as bilious temperaments and spirit drinkers get, likewise women who have borne many children, or who have an enlarged or retroverted uterus.

The mucous membrane covering the venous hemorrhoid becomes tough and fibrous from exposure and chronicity, and sometimes looks whitish, or it may become thinned and sensitive by a partial transformation of the tumor to one of an arterial character. It seems hardly possible that a purely venous hemorrhoid can be evolved from a capillary or an arterial tumor, but it is not difficult to understand how a venous tumor can be changed, by a partial displacement of the venules by arterioles, and partake largely of the

features belonging to the arterial type. I would remark, *en passant*, that the first two varieties of internal hemorrhoids, being the more delicate in structure, are rapidly cured by the operation of carbolic acid injection.

The division of hemorrhoids into internal and external is fully in conformity with the disposition of the hemorrhoidal veins into

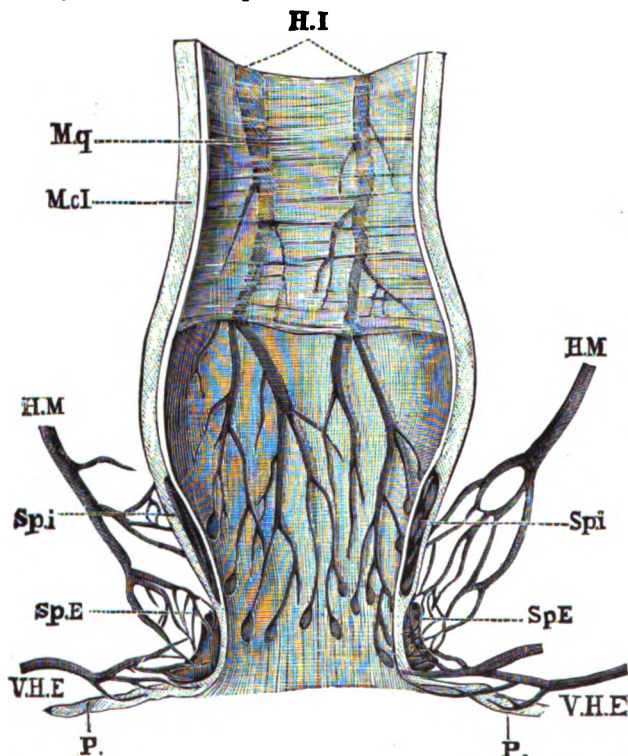


FIG. 2.—The three sets of hemorrhoidal veins. (After Duret.) P. P., skin. Sp. E., external sphincter. Sp. I., internal sphincter. V. H. E., inferior hemorrhoidal veins. H. M., middle hemorrhoidal veins. H. I., superior hemorrhoidal veins. M. cl., muscular tunic. M. q., mucous membrane dissected up and cut away below.

two distinct systems, the one internal and the other external. The internal hemorrhoidal system comprises the superior hemorrhoidal veins alone, which are the veins exclusively implicated in the formation of internal hemorrhoids. These veins have their origin in about a dozen "little sacs or pools" of blood, arranged in a circular form around the extremity of the rectum at the upper border of the external sphincter, and which vary in size, in the normal state, from a wheat grain to that of a small pea.

As the primitive branches of the superior hemorrhoidal veins take their departure from the "little sacs or pools" of blood, to which allusion is made, they ascend in parallel and flexuous lines for a short distance, then enlarge, cumulate and anastomose, and encircle the upper margin of the internal sphincter, and later unite to form the five or six large veins which abruptly perforate the wall of the bowel between three or four inches from the verge of the anus. Continuing on the outer surface, these five or six large veins form three or four venous trunks, which ascend on the sides and posterior aspect of the rectum, and enter the inferior mesenteric vein. Thus the blood is returned from the rectum, but not the anus, through the superior hemorrhoidal veins to the inferior mesenteric vein, thence through the splenic vein and vena porte to the liver. None of these veins have valves.

"Verneuil has laid stress upon the fact," says Kelsey, "that where the internal or superior hemorrhoidal veins perforate the rectal wall from within outward, they pass through 'muscular button holes' surrounded by no fibrous tissue and having, therefore, the power of contracting round the vein, closing its caliber, and preventing the return of the blood to the liver. In this anatomical arrangement he believes he has found the active cause of internal hemorrhoids."

Admitting the existence of the "button hole" apertures through the muscular wall of the rectum, Allingham demurs to the theory advanced by Verneuil, that they obstruct, by contraction, the return of the blood from the lower portion of the rectum; but, on the contrary, infers that they play the part of valves and really support the column of blood to the liver, and prevent regurgitation in congested states of that organ.

The external hemorrhoidal system comprises both the middle and inferior hemorrhoidal veins, which are the veins solely concerned in the origin of external hemorrhoids. The middle hemorrhoidal veins arise by a network, or plexiform arrangement, of minute vessels surrounding the external sphincter, and terminate in the internal iliac. Some of the rudimentary branches of this plexus perforate the upper border of the external sphincter, and anastomose with the primitive branches of the superior, or internal hemorrhoidal veins, by connecting with the "little sacs or pools" of

blood before mentioned. The inferior hemorrhoidal veins take their origin by a similar plexiform arrangement situated between the skin and the inferior border of the external sphincter, and empty into the internal iliac by first joining the pudic. The two sets, anastomosing, make up the anal venous circulation and return the blood through the iliacs to the vena cava ascendens, and to the heart.

We see from this brief review of anatomy that the blood returned by the internal hemorrhoidal system circulates through the liver, while that returned by the external hemorrhoidal system does not, except, possibly, an inconsiderable amount which may reach it through small branches of the inferior mesenteric vein that inosculate with the internal iliac, and also through a slight anastomosis of rudimentary branches of the two systems.

A regurgitation of blood through a few small inosculatory vessels (branches of the inferior mesenteric) into a large, freely coursing and expanding vessel (internal iliac), would hardly be sufficient to occlude the large vessel and thereby obstruct its branches (external hemorrhoidal system), which are provided with valves reaching as far back as the beginning of these branches. A stagnation of the portal circulation, therefore, could not materially affect the external hemorrhoidal system, and hence external hemorrhoids cannot reasonably be attributed to an affection of the liver. It follows, then, excluding local causes and assuming the disease to be constitutional, that internal hemorrhoids are produced by a disturbance involving the visceral venous system, and that external hemorrhoids arise from a disturbance implicating the general venous system.

The causes of hemorrhoids are manifold and often obscure. In general, they may be given as anything that hinders or obstructs the return flow of blood from the lower part of the rectum and anus, or anything producing an excessive flow to these parts through the arteries which supply them. Hence, sedentary life, luxurious habits, occupations which require much standing, disorders of the alimentary canal and liver, straining, constipation, excesses, etc., are circumstances favorable to the promotion of hemorrhoids; while bilious temperaments and a hereditary tendency operate as predisposing causes.

EXTERNAL HEMORRHOIDS.

External hemorrhoids always originate as venous tumors, and make their appearance primarily in two ways: The one by a simple, circumscribed dilatation of the vessel, causing an infiltration and a thickening of the surrounding tissue; the other by a condition in which the dilatation has been followed by a rupture of the vessel, allowing extravasation with infiltration, which may lead on to inflammation and suppuration, or the clot may absorb and the tumor disappear altogether or result in an external cutaneous tag, subject to irritation, œdema, itching, and induration.

An external hemorrhoid may be a bluish, a purplish, a pinkish, or a whitish looking tumor, smooth, globose, and unilocular; or it may be uneven and irregular in outline and multilocular, having two or more sacs or ruptured venulæ. It sometimes happens that a single hemorrhoidal tumor forms on one side of the anus measuring an inch and a quarter in length, kidney-shaped, and having a pallid or whitish appearing surface. The distended or ruptured vessel, in recent cases, is often plainly visible through a translucent skin.

The external hemorrhoid does not elicit the thought nor command the dignity of its neighbor, the internal pile, but usually makes itself known more forcibly in its incipient stage of formation, caused, as has just been explained, by the sudden distention or rupture of a venule of one of the inferior hemorrhoidal veins, giving rise to continuous and annoying pain, sometimes of a very sickening and unbearable character.

The question involving the treatment of external hemorrhoids, it may also be well to state, is of but little importance compared with that of the internal variety, and may be adequately presented in a very limited space and without fear of antagonizing the views of any particular authority. The reasons for this brief and harmonious disposition of the treatment of the one form of the disease, and the seemingly unfair discrimination in attaching so much more importance to that of the other, will become apparent when we reflect upon the anatomical relations of each form. External hemorrhoids, being wholly on the outside, are within plain sight

and easy reach, are not directly connected with any large vessels or important organs, do not necessarily interfere with the daily rectal evacuations, and can be safely treated by any of the ordinary methods in vogue.

The quickest, neatest, least painful and most desirable way of disposing of any form of external hemorrhoid, cutaneous tag or like redundant tissue is by excision. First inject into the base of the tumor, in a requisite number of places, a few drops of a ten per cent solution of cocaine, pinch the tissue with forceps to see that anæsthesia is complete, and then remove the growth with a pair of curved scissors. The formation should be slightly raised and held at the time of excision, with a pair of four-pronged forceps, and the amputation made at its base, or even with the surrounding surface. There need be no fear of contraction of tissue in healing as represented by some authors, and justly denied by Dr. Mathews, nor have I ever found severe and uncontrollable hemorrhage to follow. The

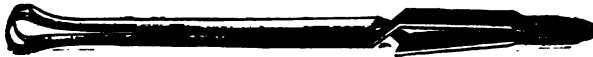


FIG. 8. FOUR-PRONGED FORCEPS.

veins of the external hemorrhoidal system, unlike those of the internal hemorrhoidal system, are provided with valves, and little bleeding may be expected from that source. Should one or more small arteries be severed, the hemorrhage can be easily and immediately stopped by compression. Place the finger over the mouths of the spouting vessels until a small piece of absorbent cotton rolled into the form of a ball can be substituted. Retain in position the ball thus formed by a sufficient quantity of cotton to act as a compress, all being firmly secured by a T-bandage, which is allowed to remain overnight. The wound is then dressed in the usual way, and will cause little further inconvenience.

The most simple and commonly accepted plan of relieving the pain and tension, and freeing the clot in a newly-formed external hemorrhoid of the sanguinous type, is by incision. First deaden the sensibility of the tumor by hypodermic injections of cocaine or by drawing a line over the surface with a probe dipped in pure liquified carbolic acid, and then, transfixing the base of the formation with a small, sharp, curved bistoury, cut outward, the incision being

in the direction of the radiating folds of the anus, and press out the clot. It may be necessary to make an incision in two or three places in an elongated tumor for the purpose of evacuating two or more clots existing in separate sacs. Place a small piece of heavily carbolized absorbent cotton at the bottom of the sac and between the edges of the skin to prevent union of the skin and to maintain drainage. A little cocaine or morphine may be used on the cotton, and the part kept bathed with the combined extracts of hamamelis and pinus canadensis, to which morphine or opium may be added if desired. The sac may be packed later with calomel or bismuth, and finally with oxide of zinc, etc.; not unfrequently the sac begins to shrivel and disappear within two or three days after the operation, and little or no further treatment will be required.

The objection to incision is that the extrusion of a clot that acts as a foreign body, although a most potent source of relief, is not followed by a complete cessation of pain; for the inflamed skin, aggravated somewhat by the use of the knife, will continue to give more or less annoyance until the inflammation subsides and reparation begins. For this reason and the reason that an abrasion surrounded by an irritated, collapsed, and a shriveling sac will not heal as readily as a smoothly cut surface, excision is preferred for the external hemorrhoid containing a venous clot, as well as for all other kinds of external growths.

The controversy in relation to the contraction of the skin in healing after the removal of external growths, may be reconciled by directing the attention to the condition of the growth at the time of excision. If it be inflamed or swollen, there will be a little shrinking or retraction of the surface of excision after the engorgement disappears, but not enough to amount to cicatricial contraction. The rule is, therefore, to make a sweeping cut in the removal of external growths in a quiescent state, while those in an inflamed or swollen condition may be cut a trifle full, that is, hardly down or even with the surrounding surface. A little variation one way or the other is, however, practically of no importance. If excision be decided upon for the cure of an external hemorrhoid containing a venous clot, there will be no necessity for making a full, sweeping cut, and the liability to hemorrhage will be much less by leaving a short stump.

While it is not as desirable to operate on inflamed tissue as it is on tissue in a state of repose, the circumstances of a case of newly-formed external hemorrhoids are usually such as to require immediate surgical interference to relieve suffering and bring about a speedy recovery. But the more chronic forms of external hemorrhoids, including the various other growths found in the vicinity of the anus, commonly, though improperly, called external hemorrhoids, will seldom if ever call for such hasty action, and when these become inflamed, it will be preferable, as a rule, to precede the operative treatment by palliative measures.



ICE BAG.

The best means of palliation consists in the application to the inflamed tumors of heat or cold, whichever proves to be the more acceptable; heat by the use of hot-water compresses, or hot, thick, flaxseed poultices frequently applied during a paroxysm of pain, and cold by the use of a thin rubber bag of ice, or a bag of powdered ice and salt combined. Extreme cold being an obtunder of pain, ice may be further utilized for its local anæsthetic effect in the removal of an inflamed tumor by excision.

The nerve supply being the greatest at the verge of the anus, makes the surface at the entrance to the rectum acutely sensitive, and it becomes exceedingly difficult to handle any kind of a formation in that locality while in a high state of inflammation, unless complete anæsthesia be obtained. The mere prick of a fine hypodermic needle used to inject a solution of cocaine into the tumor, is sometimes so very painful that the patient will often protest against anything further being done. We know too that the inflammation is not confined alone to the growth, but implicates a portion of the underlying and adjacent tissues, and that the excision of the growth leaves an inflamed surface, which will be more sensitive and heal less rapidly than it would had the inflammation been previously subdued. For these reasons palliative treatment usually precedes the radical, particularly in dealing with those large, chronic, external formations of a dense, fibrous structure, which not unfrequently complicate internal hemorrhoids.

The history of the external formations to which reference is here made, and which are so often taken for external hemorrhoids, shows that they are gradually produced by some sort of an irritation

above, and not in the regular way that external hemorrhoids are developed. They would therefore properly come under the classification of condylomata. When found in connection with internal hemorrhoids my plan has been to first eradicate the hemorrhoids, after which the external growths usually become passive, but should be removed for cleanliness if nothing more; they always swell and look more or less œdematous after an operation on internal hemorrhoids, and sometimes inflame and give rise to considerable local disturbance for a few days, creating the belief that the best interests of the patient would have been subserved had they been removed previous to or at the time of the operation on the hemorrhoids; but if associated with prolapsing hemorrhoids and removed before the latter, the patient may experience from the soreness and mobility of the parts more or less difficulty in returning the hemorrhoidal tumors after stool. If removed at the time of the operation on the internal hemorrhoids, the wounded surface would hinder the use of local applications, should any be needed, for pain incidental to the operation on the hemorrhoids.

Notwithstanding the small amount of cutting required in the removal of an external hemorrhoid by excision, there are some who are decidedly averse to being treated by any plan involving the use of the knife or scissors. To this class of patients the treatment by carbolic-acid injection offers a means of cure to which they will readily submit, although being informed that a longer time is required for the complete eradication of a tumor thus treated, and that more pain and inconvenience may be experienced from the effects of the operation than would be from that by excision. The treatment of external hemorrhoids by carbolic-acid injection, like both excision and incision, has its advantages and disadvantages. It does not instantly remove the tumor as does excision, but it has the advantage of being a bloodless operation; that is, free from any possible risk of hemorrhage, and at the same time it does not carry with it the idea in the mind of the patient of being a surgical operation, and is radical and unattended by accidents.

The objections raised against the carbolic-acid plan of treating external hemorrhoids, by those who are unfriendly to the method, are fully set forth by Dr. Joseph M. Mathews, of Louisville, Kentucky, in his book on "Diseases of the Rectum, Anus, and Sigmoid Flex-

ure." He says: "Since the carbolic-acid plan of treatment was begun, many itinerants and quite a number of regular physicians have fallen into the error of injecting external piles. I cannot believe that the wildest enthusiasm in this plan of treatment ever intended that the plan should be used in *external piles*, for it will be seen at once that, although the sloughing process might take place, and the pile be eradicated, the inflammation excited would be great, the pain intense, and ulceration might possibly follow. Therefore, to those inclined to use this method of treatment in the internal variety, I would certainly say, do not extend it to external hemorrhoids."

The reasons given by Dr. Mathews for his disapproval of the treatment of external hemorrhoids by injection, it will be observed, are concentrated in the statements that "the inflammation excited would be great, the pain intense, and ulceration might possibly follow." These statements, as I have demonstrated time and again, are certainly not borne out by experience, and are to me, therefore, purely of a chimerical character. The respected author of the above quotation seems to forget that there is more than one side to a disputed question, and that there is a possibility that he may "have fallen into the error" of having based his theoretical conclusions upon the wrong side. I have never seen anything more than ordinary swelling follow the injection, a limited amount of controllable pain, and a rapid healing of the broken surface, though not as rapid as that after removal by excision. The results will, of course depend upon the strength of the acid that is used, and the manner in which the operation has been performed. These points will be fully discussed under the treatment of internal hemorrhoids.

The real objections to the treatment of external hemorrhoids by carbolic-acid injection, according to my most careful observations, pertain solely to the length of time required for the removal of the tumor, a period of three or four days, and the pain following the injection, which is not an intense pain, but is at times more or less annoying, and usually begins within one or two hours after the operation, and may continue for twelve or fourteen. I have never operated by injection upon an external hemorrhoid when inflamed and in a highly sensitive state, but have treated by this method,

just after the acute inflammatory symptoms have subsided, a recently formed external hemorrhoid measuring one inch and a fourth in length, and the patient, a carpenter, worked every day at his trade, suffering comparatively little inconvenience. The coagulum was thrown off at the expiration of three days, leaving an excavated surface surrounded by ragged edges resembling those of a broken egg-shell, all of which smoothed down and healed without cicatricial contraction or surface depression.

Care should be taken, when operating on external hemorrhoids by injection, to see that quite a considerable portion of the cutaneous surface, especially at the summit of the tumor, is affected by the solution applied just beneath the skin; otherwise the skin will become inflamed in order to let out the interior coagulum, which I have often seen come out in three days without suppuration, or showing the appearance of much moisture and in one unbroken cystic-looking mass. Fig. 6.

What means have we, it might be asked, of preventing the solution, at the time of the operation, from extending too deeply into the tissue, or beyond the base of attachment of the tumor? This is an uncertainty which I have always found to regulate itself, and, although I have at times operated quite recklessly, I know that it makes little difference in the final result whether the solution does or does not extend

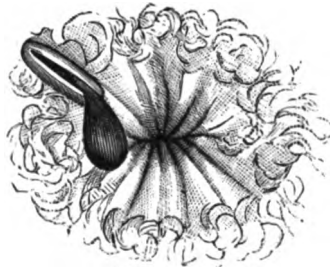


FIG. 6. Three days after operation, with coagulum still attached.

just to or a little beyond a plane described by an amputation of the tumor at its base. The operation is to be performed with a view of cauterizing all of the tissue to be removed, which can be governed only by the dictates of judgment, and if approximated, *vis medicatrix naturæ* does the rest.

The tissue of chronic external hemorrhoids, as well as that of those large external formations simulating external hemorrhoids, is found to be much more dense and impermeable than the tissue of the recent tumor, and, when treated by injection, it sometimes becomes necessary, after the coagulum separates, to trim off with the scissors fragments of the tumor left at either one or both extremities which

were not reached by the operation, and occasionally ragged projections of a tough and unyielding skin unaffected by the solution may have to be removed in the same way.

With some, the injection into external hemorrhoids is quite painful at the first contact of the solution, but immediately thereafter subsides. When the tumor is very sensitive, precede the operation by a hypodermic injection of from five to ten minims of a ten per cent solution of cocaine. Introduce the needle point barely underneath the covering of the growth, and force out one drop. This will anæsthetize enough to allow further penetration, when another drop may be thrown in. By this time you can approach the interior of the tumor to a sufficient depth to inject from three to five drops more, and anæsthesia will be immediate and complete. There need be no fear from cocaine absorption, as the carbolic-acid solution will catch and hold the cocaine all within the body of the tumor before it can be absorbed and enter the general circulation.

Since the advantages of cocaine have become known and the fear of hemorrhage has been dispelled, there is absolutely no apology for the treatment of external hemorrhoids by any method other than excision, which I now adopt exclusively. (See chapter on Condylomata.) There is a strong inclination when called upon for the relief of a thrombotic pile to insert the knife and release the clot; but if, instead, the tumor be properly anæsthetized and enough of its top amputated to permit the escape of the clot, the result, for the reasons that have been given, will be much more satisfactory.

INTERNAL HEMORRHOIDS.

EXAMINATION.

THE chief points in determining the advancement and the gravity of a case of internal hemorrhoids before a physical examination is made, lie in ascertaining from the patient, when procuring the history of the case, whether or not an inordinate protrusion occurs at the anus on one or both sides during the act of defecation, and if there be such protrusion, the extent of it, or if it has to be replaced. A case of internal hemorrhoids unaccompanied at stool by a prolapse of the tumor or tumors, together with that of a greater or less degree of a portion of the mucous membrane of the bowel, cannot be looked upon as being anything of a pronounced type of the disease or of a nature to attract much if any attention, and is confined to the primitive or undeveloped state of the affection, and to capillary hemorrhoids, the distinguishing features of which are the small size and a free flow of arterial blood.

A prolapse, then, it should be understood, is characteristic of internal hemorrhoids of any advancement, and the absence of a prolapse, except in cases of the simple capillary variety as stated, would go far toward establishing the belief that the patient has not internal hemorrhoids, but some other and possibly a widely differing affection. A point to be remembered, when consulted for the relief of a rectal or anal trouble, is that the majority of those thus afflicted are inclined to refer to all such complaints as being hemorrhoids, or piles, and unfortunately for them their disease is too often found to be something more serious.

If, after the verbal examination has been completed, it has been ascertained that there is at stool a protrusion sufficiently large to necessitate its replacement, or return, by being pushed back through the sphincters, the patient is directed to go to the closet or use a commode and make an effort to strain out the prolapse. If unsuc-

cessful in the attempt, enough warm water to produce an action should be thrown into the rectum, or the usual time for the daily motion selected for making the examination, which if it occurs early in the day, may be deferred by the will power of the patient to a later and more convenient hour. This will bring to view any and all large hemorrhoids located on the upper margin of the internal sphincter, as well as those situated between the sphincters, they being caught in the grasp and buttonholed-like by the closure of the external muscle.

Should the prolapse not be sufficiently great, or the piles sufficiently large, to be thus caught and held out for inspection, direct the patient to lie on either side, with knees drawn up, and instruct him to strain down and extrude the parts as much as possible, assisting him by gently pulling down and everting, with the thumbs, the mucous membrane at the verge of the anus. It is always better to precede the examination with an injection of warm water, which may not only unload the rectum and give the patient greater confidence in the effort to extrude the parts, but will wash away the mucus and retained feces within and about the sphincters. When the examination has been carried to this point and nothing found to indicate the presence of hemorrhoids, it will be reasonably concluded that none exist, and that the disease which led to the examination must be attributed to some other cause, which, if not already discovered, will require for its determination the use of the finger and a speculum, one or both, as per instructions given in the chapter on rectal examination.

Bear in mind that you need not look for hemorrhoids higher than the upper margin of the internal sphincter, a distance of not more than an inch from the verge of the anus, called the hemorrhoidal inch, and if the tumors be of any appreciable size, they will always show at stool. Where to look, what to look for, and how to find it, are questions which often confront the beginner, and it will not be out of place here to firmly impress the following rule: See all that can be seen and treat all that can be treated without the aid of a speculum.

Excepting the uncomplicated capillary variety of hemorrhoids, a hemorrhoidal tumor that requires the use of the speculum for its detection and treatment is extremely rare and of little impor-

tance. A tumor situated on either one or the other side of the rectum as far up as hemorrhoids ever form, and no larger than a pea, can be seen by simply drawing down the mucous membrane while the patient voluntarily strains down as if at stool and extrudes the parts. The only exception to the success of this method of sight occurs in instances in which there is an undue contraction of the sphincters, or a lack of power by the patient to relax the muscles.

DIAGNOSIS.

There is not much probability of confounding hemorrhoidal tumors with any other abnormality in the vicinity of the rectum and

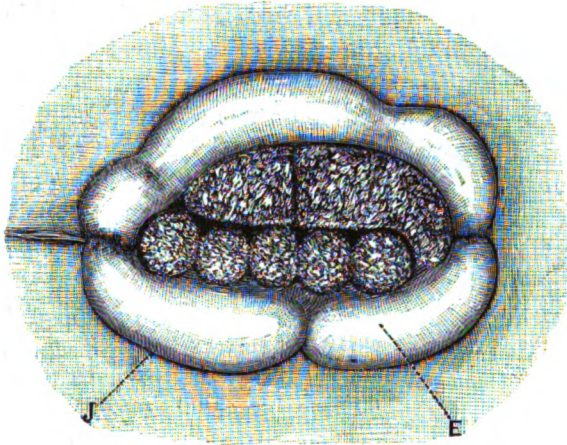


FIG. 7.

Internal hemorrhoids prolapsed and held out by the constriction of the sphincters. J, Junction of skin with mucous membrane. E, Everted bowel.

anus. The different varieties of internal hemorrhoids, a description of which has already been given, may confuse; but, as before stated, no discrimination is necessary in applying the treatment for the purpose of effecting a radical cure, the one great object to be attained. Where several distinct tumors exist, they are usually arranged in a row on either side, not up and down, but antero-posteriorly, with the long diameter of each tumor at its base corresponding to the antero-posterior diameter, or, if the muscles were dilated, to the circumference of the rectum.

If situated on the upper margin of the internal sphincter, there may be several isolated tumors thus arranged on one side, while they may have all coalesced or originally have formed into one continuous hemorrhoidal mass on the opposite side, Fig. 7, or there may be one continuous hemorrhoidal mass on either side, separated only by an anterior and posterior commissure, Fig. 8. When the mucous membrane of the bowel is prolapsed and constricted by the external muscle, the branches of the superior hemorrhoidal veins that anastomose and encircle the upper part of the internal sphincter, may be so dilated and distended in some instances as to present an unsightly appearance, reminding the anatomist of the circle of Willis; at the same time a few capillary or sessile tumors may be seen studded around at different points.

The arrangement of internal hemorrhoids in double rows on a side, the one being half an inch or more above the other, is mentioned by Henry Smith, and denied by Curling, the latter claiming that the arrangement in the one or two specimens in the Museum of the Royal College of Surgeons, cited by Henry Smith, showing that the tumors may be disposed in this manner, is due to the mode of preparing the specimens for inspection. I am inclined to the belief of Curling, having never seen duplicate rows on a side, but have found a hemorrhoidal mass seated upon the upper half of the hemorrhoidal inch, and one of two arterial and exquisitely sensitive piles attached below, just within the anus. Fig. 8 would exhibit a case of this kind were the prolapse reduced and the growths shown in their normal position.

There can be no mistake in discriminating between a large hemorrhoid and an everted or a protruding portion of the bowel; but to distinguish a small, blanched, venous hemorrhoid, located on the upper margin of the internal sphincter, from a prolapsed or sagged portion of the mucous membrane, when looking through a speculum, is more difficult. The mucous membrane presents a more smooth and continuous surface, while the hemorrhoid is more uneven and irregular in outline, fills with blood by titillation, and bleeds freely when scratched. On pulling down the mucous membrane at the verge of the anus, sometimes a slight fullness or bulbous-like expansion of an exposed part of a superficial vein, or probably one of the "little globose sacs or pools" of blood hereto-

fore described, in a state of repletion, will be seen, and should not be mistaken by the novice for an incipient hemorrhoid.

There is a species of the capillary hemorrhoid which, in some instances, may be quite obscure and perplexing, for the reason that the hypertrophic capillaries forming it appear to be very little raised above the mucous surface, and if it be situated anteriorly and at the upper part of the hemorrhoidal inch, it is liable to escape detection. Other causes being eliminated as an explanation for the presence

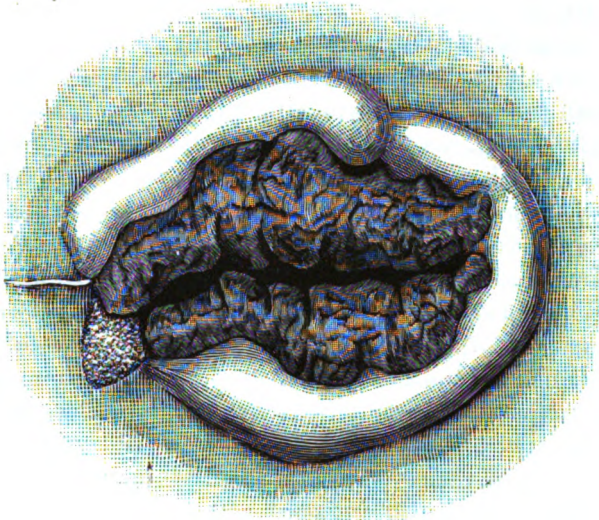


Fig. 8.

Prolapsed internal hemorrhoids, showing a continuous hemorrhoidal mass on either side, an arterial pile on the left, all completely eradicated by two operations.

of blood at stool will establish its identity, and diligent search will locate an irregular scarlet patch, which readily yields to treatment, and in this way the diagnosis may be confirmed.

The white pile (*hémorrhôïde blanche*), of Professor Richet, of the Hotel Dieu, Paris, so called because it does not discharge blood like ordinary internal hemorrhoids, but a sero-mucous fluid, is explained by the professor as merely a transformation of the ordinary pile by a hypertrophy of the papillary bodies of the mucous membrane, and the incessant discharge, which acts as perniciously as bleeding, is nothing more than metamorphosed blood.

Sometimes a victim of hemorrhoids will call and make the statement that his piles have come down and are hanging out. On inspection, a large fold of mucous membrane caused by rectal engorgement will be seen protruding from one side of the anus. This has been mistaken by physicians for a hemorrhoidal tumor, but the tumor or tumors will be found to occupy a position immediately above, yet not sufficiently prolapsed to show without separating and more completely everting the mucous surfaces.

A nipple-shaped protrusion consisting of a thickened condition of the mucous membrane, forming rather a sharp, sometimes notched, cedematous looking lip, extending across the anus on one or both sides, and which has been occasioned by localized inflammation from repeated attacks of either large or small irritable piles in proximity above, may likewise be mistaken by the inexperienced physician, as well as patients themselves, for true hemorrhoidal tumors. Such formations, in common with others of like character, and mentioned under the treatment of external hemorrhoids as being a frequent complication of internal hemorrhoids, are often incorrectly diagnosed as external piles.

In some cases of hemorrhoids of long standing, in which there is a weakened condition and a lack of sensibility of the mucous membrane, and a want of tone in the sphincter muscles, a falling or a partial prolapse of the tumors occurs from the slightest engorgement of the rectal vessels, with little more than ordinary inconvenience to the patient; also in more recent cases the tumors may remain in a state of prolapse during the acute stage of an attack, without becoming altogether intolerable; but a prolapse of hemorrhoids, followed by a strangulation of the tumors from a tonic spasm of the sphincters, is quite another phase of the disease and fortunately an exceptional one.

Reduction may be effected when called to a patient suffering from prolapsed hemorrhoids and is unable to return them, by placing him in the genu-pectoral position, to allow the intestines to gravitate toward the chest, thus producing a sort of suction, supporting the pelvis, while in this position, by means of three or four large pillows; then, after having first brushed over the constricted mass a five per cent solution of cocaine, smear the protrusion with vaseline, and insert one finger into the rectum, and with the other hand attempt

to empty the tumors of a portion of their superfluous blood by gentle pressure; finally make an effort to push the protrusion through the sphincters *en masse*, or roll in one side at a time. The patient may greatly assist in effecting reduction, while pressure is being made, by simply straining down as if at stool, the object being to relax the muscles, the same in effect as is obtained by general anæsthesia. The patient will no doubt involuntarily recede from the pressure when it is first applied, but encouragement and persistency will accomplish much in this manner. If unsuccessful, make warm applications to the exterior and inject into the rectum a quantity of hot water, and, after the water has been expelled, apply taxis as before. Some recommend that a bladder of ice be kept on the parts an hour before attempting to replace the mass; but if the ice be allowed to remain too long there is danger of sphacelation of the tumors.

If strangulation be neglected, the prolapsed portion of the bowel soon becomes infiltrated and thickened, and it is not only more difficult to reduce the mass, but often impossible to keep it reduced. There will be an increase in pain, with more or less constitutional disturbance, and if the constriction be sufficient, gangrene of the tumors supervenes. To effect reduction at this period, even if it could be successfully done, would be at the risk of septic infection, and the case had just as well be left to nature, although most authorities advise an immediate removal of the tumors. If nature's process be not interfered with, the sphacellated portions of the tumors slough, the protrusion recedes, relief follows, and in some instances a complete cure results.

I see no necessity for any particular haste in a case of strangulation after gangrene has set in, for the parts at that time have become more or less accustomed to the situation, the patient suffers little, and a favorable change will soon take place. In a case of this kind to which I was called after gangrene was imminent, the engorgement had already begun to subside, the hemorrhoidal mass, which entirely encircled the bowel and was of enormous size, sloughed from the top, leaving a ragged stump all around. This was treated by injection as soon as the sloughing ceased. The cure was permanent.

From polypi, hemorrhoids may be distinguished by their spongy-like texture, history, shape, color, manner of arrangement, and by

being easy to bleed when scratched, and more painful. Polypi are said to be hypertrophic formations of the normal elements of the mucous membrane and the submucous connective tissue. If originating principally from the former, they are soft; if from the latter, hard and fibrous, are generally pedunculated, or club-shaped, sometimes grow rapidly, not painful unless compressed by the sphincters, may arise entirely above the sphincters, and are rarely of a glandular, villous, or bleeding surface. Should a mistake be made and a polypus be properly operated upon by injection, the result would be nothing more than a permanent removal of the offending growth.

TREATMENT.

In the treatment of hemorrhoids by the operation of carbolic-acid injection, there are certain rules and minor details to be observed before, during, and after the operation, which, if strictly followed, will greatly facilitate the ease and success of the treatment and materially abbreviate the time in effecting a cure.

It matters not what form of tumor is presented for treatment, whether it be of the capillary variety, distinguishable in being of small size, flat, or sessile, made up of the terminal branches of the arteries, the beginning of the veins, and the capillaries which join them, punctated, granular surface, with thin covering, and likely to bleed on the least provocation, or the arterial hemorrhoid, with the arteries and veins freely anastomosing, larger, and presenting the glazed appearance of a very ripe strawberry, liable to inflammation, erosion, prolapse, and hemorrhage, or the venous hemorrhoid, hard or soft, not very sensitive, blue and sluggish, which Kelsey says may result from either of the other two varieties or arise *de novo* and bleed *per saltum*; each is treated alike and with like good results by the operation of carbolic-acid injection and the use of the combination herein recommended.

It is quite common for those afflicted with hemorrhoids to call for treatment while suffering from an attack, or at the time they experience the first symptoms which usually precede an attack, constituting what the older writers called the hemorrhoidal effort. This is not a favorable time to operate on account of the engorged condition of the rectal vessels and the irritability of the mucous membrane. First, reduce all local congestion and inflammation by

palliative measures, such as hot water douches, injections into the rectum of equal parts of the fluid extracts of hamamelis and pinus canadensis in a little water, or water and glycerine, should the latter be not repelled by an irritated bowel. At the same time open up the portal circulation by the use of equal parts of sulphur and cream of tartar, a teaspoonful in syrup or mixed with sugar, once or twice a day for a few days, or any other suitable means to put the bowel and piles at rest. Often patients will know what will relieve them of an attack of piles better than the physician, inasmuch as what relieves one will sometimes aggravate another.

In all cases of large growths, whether the patient is in a comparative state of ease or not, a similar preparatory treatment before the operation will shrinken the tumors and lessen the tendency to local congestion and pain. Sulphur should not be taken within two or three days prior to an operation, since it continues its action about that length of time after dosage; but the bowels should be sufficiently evacuated previously to enable them to be held for four days afterward, by any agreeable cathartic or by *flushing the colon*. This will be unnecessary in the treatment of small growths.

When the bowels are already in a soluble condition, the compound sulphur tablet, together with the hamamelis and pinus canadensis, will be found, as a rule, all that is necessary to fit the patient for the operation. Should pain or a feeling of uneasiness suggest the use of an anodyne, a sixth of a grain of morphia should be added to each half teaspoonful of the combined extracts, and, after the rectal douche, thrown into the rectum twice a day. A hollow cocoa butter suppository holding thirty minims is a convenient vehicle to carry the extracts and morphia, and, introduced into the rectum, will almost instantly relieve the unpleasant sensation characterizing a mild attack of internal hemorrhoids.

The previous evacuation of the bowels by flushing the colon has the advantage over catharsis in that it does not disturb the digestive tract, and admits of no possible chance of engorging the rectal vessels or irritating the mucous membrane, and is a means always at hand, is simple, easily and quickly performed, and does not delay the operation more than forty-five minutes; nor has it, like many purgative medicines, the uncertainty of continuing its action beyond the appointed hour, or operating at an inopportune moment. I

always adopt this method of unloading the bowels when the gravity of the case demands that no motion take place within the prescribed limit of four days after an operation.

The same course should be pursued to expose the tumors for the operation, that was named under the head of examination. In instances in which the tumors are not very large but exceedingly irritable (arterial), it may be quite difficult, even though the mucous membrane be partially prolapsed, to expose them sufficiently to perform a good operation without the use of a speculum. In such cases, paint the protrusion with a five per cent solution of cocaine and allow the patient to sit for a few moments over a vessel containing a small quantity of steaming hot water. This will engorge the tumors, relax the parts and materially aid in handling them.

The spongy structure of hemorrhoids gives them a power of erectility not generally known, resembling, to a certain extent, that of the corpus spongiosum of the penis, and is a property which may be utilized in their treatment, by handling or titillating the tumors, when it is desired to make them stand out more prominently to view.

To prevent the solution from extending too deeply into the tissue of the bowel by gravity during an operation, and the overflow from running down on the outside of the pile and over the mucous and cutaneous surfaces, I advised formerly, that the patient lie on the side opposite the tumor to be operated upon, so that, the growth being attached on the upper side and pendant, the preparation would gravitate toward its apex rather than to its base of attachment; but at the present time I seldom follow this rule, for the reason that with the tumor on the lower side it can be more conveniently handled and exposed, and the operation more accurately performed.

Smear vaseline over the muco-cutaneous surfaces on both the upper and lower sides, the lower surface being in a position to catch the smallest quantity of the solution that may drop from the hemorrhoidal needle at the time of the operation, or escape from the place of puncture after the needle has been withdrawn. Should any of the solution come in contact with the mucous membrane, take it up at once with absorbent cotton and apply glycerine to the place,

glycerine being one of the best known antidotes to the immediate local effects of carbolic acid.

An assistant may advantageously help in exposing the tumors by retracting the lower buttock and drawing down the mucous membrane at the verge of the anus, while the patient retracts with one hand the upper buttock and voluntarily extrudes the parts. If the tumor be small and partly obscured, the end of the finger may be held back of it to act as a counterforce while introducing the needle, or either a single or a double tenaculum may be used to pull



FIG. 10. Greene's Double Tenaculum.

and hold it down for the same purpose, being careful not to remove the tenaculum when once applied until after the operation, as the least prick or scratch of a hemorrhoidal tumor will cause a free flow of blood and thus greatly hinder the progress of the operation by obstructing the sight.

THE SOLUTION.

The solution of carbolic acid found to be uniformly successful in the treatment of hemorrhoids by injection, is prepared by first making a solution of the acetate of lead and borax in glycerine, in the proportion of two drachms each of the chemical pure salts to one ounce of Price's glycerine.

Formula:

R. Plumbi acet.

Sodii bibor..... āā 3ij

Glycerinæ..... ʒj

Mix in a graduate, pour into a two-ounce vial, and let stand for twenty-four hours. The solution of the salts is hastened by placing the vial in a warm water bath and letting it remain there for fifteen or twenty minutes. The glycerine can be handled to a better advantage, and its measurement more accurately made and retained by warming it, and also the graduate, before it has been poured into the graduate and the chemicals have been added.

Select Calvert's No. 1 crystallized carbolic acid and pour a sufficient quantity, liquefied by warmth, into a two-ounce graduate to measure one ounce, and add two drachms of distilled water. To

this add enough of the glyceride of lead and borax previously made to make the combination measure exactly two ounces.

Formula:

R. Acidi carbol. cryst.....	3j
Aquæ destillati	3ij
Sod. bibor. et plumb. glyc.....	3vj

Misce. et Sig. Solution for hemorrhoids.

The object of the water in the formula is to lessen the syrup-like consistency of the preparation. Should equal parts of crystallized carbolic acid and the glyceride of lead and borax be combined, the solution will be found rather too heavy for convenience. It will not flow through the hemorrhoidal needle as freely nor take hold of the tissues, when injected, as quickly as does a solution containing a small proportion of water.

Be particular in the weights and measurements, and the purity of the ingredients entering into this preparation, as anything unnecessarily irritating should be scrupulously avoided. I have tried synthetic carbolic acid and found the odor of tar to be decidedly stronger, and believe it much more acrid and irritating than the commoner preparations; neither can I see that anything is gained in using vegetable glycerine.

Some make no allowance, in attempting to give my formula, for the increase in bulk of the glycerine occasioned by the addition of the one-half ounce of solids, and direct that the ounce of carbolic acid be added to the full amount of the glyceride of lead and borax when made. By this inadvertence not much over a thirty-five per cent solution of carbolic acid is obtained. After trying the acid in varying strengths and watching its effects, I have concluded that not less than a fifty per cent solution should be used. The addition to the solution of the acetate of lead is designed to restrict the action, and that of the borax to lessen the irritative properties of the acid. The acetate of lead not only keeps within limits the distribution of the acid at the time the solution is forced out of the hypodermic syringe, but of itself combines with a certain portion of the albumen of the blood and other tissues, forming the albuminate of lead. If I were to make a change in my formula it would be toward an increase rather than a diminution of the quantity of the acid.

QUANTITY TO BE USED.

The quantity of the solution to be injected into each tumor or hemorrhoidal mass, depends entirely upon the size of the tumor or mass to be operated upon, and will vary with that size from three to thirty minims or more, as much as one-half ounce sometimes being required for a single hemorrhoidal mass occupying one side of the rectum. There is no rule by which the quantity can be accurately gauged before the operation. This can only be approximated by judgment. The object is to inject a sufficient quantity to permeate the entire substance of the tumor, its texture being much more spongy than the surrounding tissue, but not enough to extend beyond its base of attachment.

THE OPERATION.

Puncture the tumor at the most accessible point, preferably near the apex or about one-third of the distance from the apex to the base, with the axis of the needle forming an acute angle or nearly parallel with the base, and the face or opening looking toward the apex. Gauge the nut on the piston of the syringe for about five minims. Force out the solution slowly drop by drop, watching its action by the change of color that creeps over the surface of the pile or that part near the place of injection. This change of color is quite marked with hemorrhoids of a delicate texture and covering, less so with those more fibrous or tougher in character. Hold the needle in position until the preparation seems to have distributed itself or you are satisfied enough has not been injected. In the latter event turn back a few rounds the nut on the piston and throw in a few drops more. Repeat this procedure until that particular part of the tumor seems to be well permeated. Withdraw the needle carefully. Should any of the solution run out unmixed with blood, take it up with absorbent cotton, as it indicates that the quantity at that place is superfluous; but should blood flow, reinsert the needle and inject more. A good plan as a precautionary measure when operating on large growths and one or more points persist in bleeding at the place of puncture, is to lift up the tissue with the hypodermic needle, as if it were a piece of cloth, and inject superficially a few drops of the preparation at short intervals, frequently withdrawing the needle to see if the

bleeding has stopped. This is sometimes a tedious procedure, and I have often been astonished at the quantity of the solution some particular part of a tumor will take up in this way without doing harm. Evidently, a large artery is near, and possibly a large blood cavity has to be filled with coagulated blood before blood ceases to run out, for I have frequently noticed that such tumors become much larger while under operation. Now, if the tumor be one of any size, take some other part and treat it in a similar manner, and thus go over all parts which appear untouched. It may be necessary to puncture large, elongated formations in eight, ten, or a dozen places, some superficially and some reaching fully to the center of the growth. The solution naturally gravitates to the base of the tumor, and with those of a delicate texture it is possible to permeate the entire growth by making the injection superficially at the apex. But if the arterial pressure is strong in places, the solution will be



FIG. 11.

Diagram showing vertical section of hemorrhoid. M, prolapsed mucous membrane; F, most fibrous portion; V, most vascular; A-B, line representing an incomplete injection; C-D, line representing complete injection.

wait until all oozing entirely ceases before considering the operation finished.

At the inferior attachment of a hemorrhoidal tumor there are no large vessels; the integument is more dense or fibrous in character than any other part, and hence less easily permeated. It often looks like the serous coat of an intestine, and sometimes looks puckered and shows white bands at its junction with the mucous

thrown outward; and in other places where there is little or no blood pressure it will travel in the direction of the least resistance. After a few drops have been injected the tumor will swell to some extent, or become erect, roll out, and will be more completely exposed, and can be more effectually operated upon at its upper attachment, where the tissue is delicate, vascularity great, and bleeding easily provoked. Here the pile structure slopes down to the surface of the bowel at an acute angle, and the injections should always be superficially made. To avoid the solution from being forced too deeply, lift the tissue with the needle, as before stated, the one object being to cauterize the abnormal tissue without encroaching upon that of the bowel. I do not always wait until blood ceases flowing from one part of a tumor before puncturing another, and sometimes have two or three places oozing blood at the same time. Neither do I always

membrane of the bowel. This tissue is always cut through at its junction with the bowel with a pair of scissors in the treatment of hemorrhoids by the ligature when that method is properly performed. I never insert the needle at this point, but keep away one-fourth of an inch or more, so as not to encroach on the bowel structure, where the sensibility is acute. When it is desired to cauterize this tissue more effectually to insure clean sloughing, inject the preparation cautiously into it, a drop or two, as if making intra-dermic injections. Occasionally a leaf-like projection of this tissue will remain after the tumor has sloughed and interfere with the healing and smoothing of the bowel. Also, in cases of long standing, one or more small projections of the more dense tissue of the tumor, about the size of a wheat grain, will be seen farther up on the bowel surface. When any of these are found, apply to them pure carbolic acid by means of a probe, and with a pair of curved narrow-bladed scissors, cut them off even with the surrounding surface; there is scarcely ever the slightest pain felt, and the bleeding is so trivial that it does not enter as a factor. Place a small pledget of cotton over the surface of incision, and the bleeding will be immediately stopped by the compression of the sphincters. The scissors I use mostly in rectal work are the same as those shown on page 133, except that the blades are much narrower.

The solution takes effect slowly by virtue of its astringency and syrup-like consistency, and no doubt extends some farther than is always apparent at the time of the operation. If the amount of tissue to be removed is large, and cavities filled with blood exhibiting strong arterial pressure be found, more time will be occupied in performing the operation than is generally supposed, as much as one hour occasionally being required. The time is taken up, in such cases by holding the needle in place, after it has been inserted, until the part of the tumor punctured shows evidence, either by appearance or by the touch, that enough of the preparation has been injected to produce the desired effect. If the part feels soft or springs up under the finger like an elastic ball when pressed, or blood flows freely through the place of puncture after the needle has been partially or completely withdrawn, either enough time has not been allowed for the preparation to take full effect or a sufficient quantity has not been injected.

As a rule, hemorrhoids, properly operated upon by injection, immediately become erect and hard, but in some instances I have seen them shrink and become flabby. There are dense, fibrous portions and septa forming compartments in some growths, which prevent the solution from passing through readily, and if a soft section be noticed, it has not been reached, although it will doubtless break down with the general mass; yet it will break

down with less struggle and pain by receiving a few drops of the solution for reasons that are obvious. I have seen a liberal injection into the middle one of three tumors connected and arranged in a row, so penetrate those on either side that a single reddish column-like fragment appeared afterward on the extreme outsides, Figs. 12 and 13. The day after the operation the tumor should appear perfectly dead, as if it were boiled or cooked, and of a dark or leaden color, varying somewhat with the amount of blood it contained and the thickness of its covering.

Large hemorrhoids must not be exposed too long after the operation, since there is always more or less swelling produced around the tumor by the stoppage of the circulation and the presence of a foreign body. Return first the side not operated upon, then the other, and if the tumor has considerable length, let it go in endwise. The patient can often return the protrusion with least pain.



FIG. 12.

Three internal hemorrhoids before operation.



FIG. 13.

After a liberal injection into the middle tumor.

A little practice will enable anyone to see the simplicity of the entire procedure. If you should make a mistake, when operating through a speculum, and deposit the entire amount of the solution gauged for the injection, into a fold or sagged portion of the bowel, do not be alarmed, as it will only tighten, or shorten, the bowel a little on that side, and be a little more painful and longer in healing. Injection into internal hemorrhoids is not painful to any degree, therefore, if the patient complains much, you may suspect that you are invading the tissue of the bowel. The pain will, however, be only momentary, for the solution acts as a powerful local anæsthetic, and completely deadens the sensibility. Before anointing the parts and proceeding with the operation, it may be well, when handling nervous patients, to brush over the tumors and the exposed mucous membrane a five per cent solution of cocaine.

From two to five hours after the operation, the carbolic acid loses its local anæsthetic effect, and more or less pain may be gradually experienced, caused by the presence of a foreign body acting on the peripheral nerve at a point where the line of demarkation forms. This pain varies in intensity with the sensibility of the patient and the surface of attachment of the tumor or tumors, and often amounts to little more than a feeling of weight, or a dull, aching sensation. Some will not complain at all, saying the discomfort is not as great as that from an attack of piles; while others

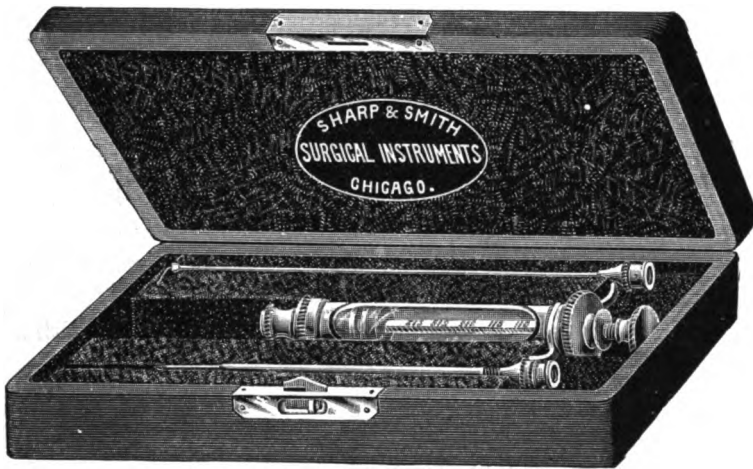


FIG. 14.

Syringe, needle and flexible silver canula.

will make considerable fuss, necessitating the use of an opium and belladonna suppository, and other local palliative measures.

The suppository:

R. Opii Pulv. Optim..... gr. xviiij
 Ext. Bellad..... gr. iv
 Ol. Theobrom..... ʒiij

Misce et Ft. Sup. No. xij.

Sig. Introduce one every hour or two, as occasion requires.

The pain does not continue longer than twelve or fourteen hours, and often not longer than two or three, being replaced by a feeling of soreness, which is sometimes reflected down the limbs or up to the bladder.

The treatment after the operation should be markedly palliative. Hot-water sponge compresses to the anus, hot-water sitz baths, and hot poultices, together with opium and belladonna suppositories *pro re nata*, are great as long as there is pain and a feeling of soreness. If the extent of the operation requires that the bowels be confined, enemias should be dispensed with until after the expiration of four or five days. The rectum is then to be evacuated by the injection of hot slippery elm or borax water, and if the local disturbance has been considerable or the parts are found to be in an extremely sensitive state, daily rectal irrigations of hot water softened with borax are to be employed, as well as a soothing suppository:—

R. Bism. subnit.

Iodoformi āā.....3j

Opii. pulv.....gr. xij

Ext. belladon.....gr. iv

Ol. eucalypti.....gtt. vj

Misce et Ft. Sup. No. xij cum Ol. theobrom. et oliva.

The oil of eucalyptus will almost completely disguise the odor of iodoform.

In place of the suppository, I have been using of late with satisfactory results the following mixture:—

R. Bism. subnit.....3ij

Morph. sulph.....gr. ij-iv

Fl. ext. pin. canad.....3jss

Fl. ext. hamamelis.....3ss

Misce et Sig. A teaspoonful as directed.

A teaspoonful of this medicament is drawn up into a syringe and discharged as near the broken surface as is possible. The nozzle



Fig. 15. H. R. Syringe.

zle of the syringe need not be introduced farther from the entrance to the rectum than one-half or three-fourths of an inch. A one-half ounce hard rubber syringe provided with an extension for the fingers, as shown in Fig. 15, is well adapted to the purpose. The fluid extracts of Canada pine and witch hazel, sometimes, though rarely, give rise to considerable pain when they are brought in

contact with a hyper-sensitive surface. If their application as they are given in the formula be followed by pain, they should be reduced by admixture with mucilage of acacia or diluted with water, or their use suspended until the irritated surface has acquired more age. One-half teaspoonful once a day is sufficient for mild cases.

Anything that excites and keeps up pain is hurtful. Severe, continuous and prolonged pain should always be subdued as much as possible and the parts given absolute rest. Suppositories containing glycerine, castor oil or anything productive of local distress, are to be wholly discarded. Intense paroxysmal pain, manifesting itself after the primary effects of the operation have passed off, or later than sixteen hours from the time of the operation, is an evidence of spasmodic contraction of the sphincter, induced either by the invasion of the muscular coat of the bowel, by the presence of a fissure or to a peculiar condition of the patient usually found associated with tight sphincters. Spasm of the sphincter resulting from an operation on internal hemorrhoids is accidental to the treatment, and will be classified and considered in that relation.

Temporary sympathetic paralysis of the bladder or spasmodic stricture of the urethra sometimes occurs, and may be relieved by hip baths, hot-water applications over the bladder and to the perineum, or by the catheter. The latter is very seldom required and cannot be introduced in the male until after the urethral spasm has been relaxed. Retention of urine may become an alarming complication after an operation on hemorrhoids of large size, and when efforts at catheterization have been unsuccessful, particularly with persons advanced in years and having an enlarged prostate. Such cases of course are rare, but before thrusting a trochar into the bladder, which may have to be repeated, give to the patient, while warm in bed, one-third of a grain of pilocarpine every half hour until complete relaxation occurs and free diaphoresis has been established. Should the urine not then flow almost of its own accord, pass through the bladder a faradic current and the result will certainly be most happy.

When the hemorrhoids are large and involve considerable surface by their attachments, I prefer that the bowels be confined for five or even six days after the operation. If, however, the desire for

a movement becomes almost irresistible, or the inconveniences experienced by the patient seem to more than outweigh the advantages to be obtained by confining the bowels for that length of time, I advise that the rectum be evacuated by throwing into it enough hot slippery elm water to make the action easy. The desire for a movement is, from habit, usually stronger the second or third day after the operation than later, but if the bowels have been previously well evacuated, a liquid diet maintained, and an opium and belladonna suppository occasionally introduced, the disposition toward an action may be largely if not entirely overcome.

In exceptional cases the patient will be unable to control the bowels for any length of time, and in such instances I permit an action by first using the slippery elm water as named, and enjoin as little straining as possible. I have never had any difficulty after an operation on large hemorrhoids from a prolapse of the tumors by an effort to evacuate the rectum, and believe that there is at such times little tendency toward a prolapse, for the muscles seem to be in a semi-paralyzed condition, not due so much to the use of opiates as to a tenseness of the tissues, caused by the swelling, and the shock to the parts. In many of the worst cases, in otherwise healthy persons, the holding of the bowels will be mentioned as being the greatest difficulty encountered during the entire course of the treatment. A little flatus will sometimes produce an annoying titillation of the muscles. It has been suggested that a small tube be introduced at such times for relief.

A certain amount of moisture, which is not always noticeable, however, begins to exude the second day after the operation, and a peculiar smell sometimes emanates when the coagulum is thrown off. These should not be interpreted as suppuration.

It would be unreasonable to suppose that all cases will behave alike. The local and constitutional disturbance will, of course, depend upon the size or surface of attachment of the tumor or tumors, and the nervous and physical condition of the patient. It is best to require patients to be quiet a few days, even though they do not complain, after an operation on large hemorrhoids or when more than one of small size have been taken.

The operation may be performed at the office or the residence of

the patient, as suits the circumstances and gravity of the case. Inasmuch as there is no particular strain on a patient during an operation, and the pain which usually follows, even should it become severe, does not begin for one or two hours afterward nor culminate inside of eight or ten, patients may be allowed to travel some distance after they have been operated upon provided they do not indulge in much walking.

When the case is one of considerable magnitude and the tumors occupy both sides of the rectum, it will be better, as a rule, to take one side at a time, making two operations of the treatment. In a case similar to that represented in Fig. 7, operate on all of the five small tumors first, while they are held out and exposed by the aid of the large one on the opposite side. Should the large tumor be taken first, it may be impossible for the patient to extrude the parts sufficiently afterward to get a good operation on the small ones, and in time they may enlarge and a relapse follow. Another reason for taking the smaller side or the smaller part of the disease first is that the tumor or tumors left will be found, when the patient is ready for the second operation, to have decreased in size, and the parts wonderfully improved. I invariably follow this rule, often contrary to the wishes of the patient, and have noticed time and again that the patient experiences much less discomfort from the effects of the last operation than the first, even though the last involves more tissue.

Should there be a mass encircling the rectum, or nearly so, take the smaller portion first. A line of demarkation will form, and that part affected by the solution slough away without the least disposition toward hemorrhage. I have injected a few drops of the solution in several places into a pile tumor, but not sufficient to permeate the entire growth, and noted the result. On the second or third day gangrenous or sphacelated appearing patches were seen, with intervening live tissue which shriveled and disappeared as the growth perished, but sometimes a large patch unaffected would be left, and had it not been removed would doubtless have reproduced the growth.

Carbolic acid, as we are aware, has a tendency to produce gangrene in a wound. It is this effect which we desire for the removal of hemorrhoidal tumors. It is this property of the agent which entitles it to the name anti-phlogistic. I have never seen the solution I use produce inflammation either direct or remote. Its action is to produce devitalization and tissue necrosis. The antipyretic action of other coal tar derivatives must be due to the same principle.

Pain as a factor in the treatment of hemorrhoids will depend largely upon the condition of the sphincters. If they be tight more or less pain may be expected; but if loose, as in old and many middle-aged people, comparatively little. It may be stated that little can be done toward the eradication of any case of hemorrhoids, it matters not what

strength of carbolic acid be used or plan of treatment adopted, without causing more or less discomfort to the patient in every instance, and in some instances real pain and suffering for a brief length of time; not from the immediate effects or as the direct result of the operation, for the operation of itself is comparatively trivial and practically painless, but from the changes which necessarily take place during the process of cure. This is not surprising when the amount of tissue sometimes involved and actually removed by a radical operation is considered; yet, when the preparation used is sufficiently strong to produce a decided effect, the pain, in the majority of instances, is no greater, and not as great in the treatment of extremely *irritable piles*, as that caused by the periodical squirting in of a few drops of carbolic acid and water, extending over a period of weeks and even months, which is a procedure neither safe, certain, nor otherwise satisfactory, and often brings discredit upon a process which, if properly understood and rationally applied, has no approach to a comparison with any other method of cure.

Some physicians fear to use anything stronger than a little carbolized water and glycerine, lest they produce carbolic-acid poisoning, embolism, or a slough. This is a mistake; the dangers they seek to avoid are coupled with such uncertain and illogical practice.

A weak, thin, watery solution, aside from doing poor work, is much more liable to diffuse itself and be carried into the circulation like a hypodermic of morphia, than a solution sufficiently strong to act as a cauterant, by which the tissue is destroyed, a tough, compact and an insoluble coagulum is formed, and the circulation strangulated at once.

Dr. E. H. Dorland, Chicago, Ill., says: "When a compact coagulum is formed and the muscular layer of the bowel is not touched by the styptic, it is impossible to do harm, all the learned theory to the contrary notwithstanding. A weak solution forms little globules in a tumor and we can *imagine* one so small as to be carried into the circulation."

Dr. F. L. Haynes, Los Angeles, Cal., reports a series of fifteen cases of hemorrhoids, ranging from a mild to a more or less severe type of the disease, that were treated by weak solutions of carbolic acid with anything but gratifying results. In the first five cases, single injections of five minims each of a two per cent solution of

carbolic acid were employed at intervals of ten days. The pain following some of the injections lasted from two to three days, and in one case there was sloughing of the tumors and a cure, but the pain was intolerable, and crural phlebitis, starting in the veins near the sloughing tumors, set in immediately, which kept the patient in bed for two months and seriously endangered life.

The remaining ten cases were treated by the injection of five minims of a five per cent solution of carbolic acid in glycerine and water (*a la Kelsey*), at intervals of ten days or longer, and were more satisfactory; but there was more or less pain in some instances and sloughing, with relapses and failures to cure in others. The fifteenth case is noteworthy from the fact that, in the treatment of this patient, the doctor inaugurated a radical and almost an unaccountable change in the strength of the acid for one prejudiced by "the literature of the subject" against strong solutions. He says: "After twenty-five sittings (250 days) in which a five per cent solution was used, two small but annoying tumors remained. These were constricted separately at their bases by the wire of a nasal snare, and pure crystallized carbolic acid (liquefied by warmth) was injected into each till the mass turned white." Then the startling announcement comes that the result was a cure with but slight inconvenience, and that two other cases similarly treated were equally satisfactory.

This impartial report of fifteen consecutive cases, by one biased in favor of the weaker solutions, may be fairly considered as a good representation of the stereotyped five minim injection of the weaker solutions, advocated by some writers and those who claim to be able to cure piles without causing pain or detention from business.

A review of the series shows that a few of the milder cases were cured, after an indefinite length of time, by a contraction of the tumors with little inconvenience, but some relapsed; that others were cured by inflammation and sloughing, with a great deal of pain and inconvenience; while others were little affected by the treatment.

Andrews' "Rectal and Anal Surgery," last edition, says: "We have given weak solutions a thorough trial and abandoned them, for the reason that they give a maximum of swelling and pain with a minimum curative effect. Strong solutions in our hands give lit-

tle or no pain, very limited swelling, and more certainty of action. We can speak highly of Dr. Agnew's formula (San Francisco)."

A solution of carbolic acid, either weak or strong, when deposited to any depth beneath the surface, surrounded by live tissue and a free circulation, will of necessity excite pain, inflammation and a slough, the same as a splinter in the flesh, unless it should be so weak as to be absorbed, in which event it would become locally inert. Carbolic acid having a non-inflammatory secondary effect closely following a mild inflammatory primary effect will often, when a small quantity of a weak solution is used, produce a contraction of the fibrous tissue, and a consequent hardening and decrease in the size of the tumor by destroying the capillaries where applied, which would be a very good way to cure hemorrhoids were such effects uniform and permanent.

To effect a safe, speedy, and radical cure, it is desirable to get rid of the tumor bodily, not by shrinking, or contraction, leaving a hard, or an indurated prominence, subject to resuscitation and a return of the old malady, nor by inflammatory destruction; but by a separation of the spongy and vascular growth from the normal tissue of the body, the same as if it were dissected from its remotest attachments. This is obtained by putting a sufficient quantity of the preparation recommended just where you want it, and such results will invariably follow.

In looking over the comments of Kelsey, Mathews, Andrews and others, concerning the treatment of hemorrhoids by injection, it appears quite evident that they have not given the subject scientific study. It would seem that representative men and authorities, after a knowledge of the brilliant results following the treatment in many cases, attended by accidents and failures to cure in others, would seek to know and try to obviate the cause or causes of these unexplained irregularities; but they never improved upon the method in its primitive and undeveloped state, yet seemed willing to magnify and enlarge upon all the accidents and complications arising from and following the indiscriminate use of all sorts of injection compounds, in the hands of the ignorant and inexperienced, and in diverse and unfavorable conditions for treatment.

With the utmost respect for the above-named gentlemen and those who coincide with them, all of whom I believe to be capable, honorable and conscientious, and whose opinions are justly based

upon the observations and knowledge in their possession, I am compelled to say, from a full realization of the truth of my statement, that they are totally ignorant of the treatment rationally and scientifically applied, and are, to say the least, censurable for antagonizing a thing of which they know so little. They are not only guilty of misleading an attentive and confiding profession, but are denying themselves of the benefits and superior advantages of a method the discovery of which, I feel justified in saying, *marks an epoch in the history of medicine unrivaled in advancement by the treatment of any other disease or class of diseases to which the human family is subject.*

According to these authorities, who quote from and appear to agree with each other, the best manner of treating hemorrhoids by the hypodermic method is to "inject only one or two piles at a time, and allow from ten to thirty days between the operations." "Use diluted forms of the injection first, and stronger ones when these fail." Two of the writers mentioned are silent upon the quantity to be used, but Kelsey directs that five minims be deposited in the center of the tumor and repeated at intervals of ten days until the pile is cured *or some commotion takes place.* (The Italics my own.) It will be remembered that Kelsey was greatly enthused at first by the success of the treatment, but his ardor was considerably dampened later by a run of bad luck, although no serious accidents occurred.

Can we not understand how five drops of any kind of solution thrown into the center of a large tumor would most likely disturb and harass the growth by acting as a foreign body, the same as a splinter in the flesh, producing swelling, inflammation and prolonged pain? Is it not reasonable that the tumor should be thoroughly permeated and a preparation be used that effectually destroys the life of the formation, leaving a dead and hardened mass to be thrown off by the processes of nature, a change often completed at the expiration of three or four days? The base of attachment of a tumor thus treated heals, while the dead tissue, which is rendered non-inflammatory and antiseptic, separates, a process that fortifies against secondary hemorrhage. It is sometimes interesting to note with what tenacity the dead tissue formed in the manner described, adheres and affords complete protection to the broken surface of the bowel.

There are no tenable objections to the treatment of hemorrhoids by carbolic-acid injection, rationally and scientifically applied, which cannot be equally urged against the more heroic plans of treatment advocated and generally adopted; but there are many serious and unavoidable drawbacks inherent in the latter methods of cure, which are wholly and incontrovertibly absent in the former method.

The behavior of a bad case of hemorrhoids after injection is similar, in many respects, to that after an operation by the ligature, the thermo-cautery, crushing, etc.; except that the local and constitutional disturbance is of shorter duration and is less marked, with none of the after consequences which not unfrequently complicate recoveries, when the harsher means have been employed.

In many cases of hemorrhoids, and in fact it may be said, in the majority of instances, not more than two or three accessible, medium-sized tumors can be found, and which, having been a source of great annoyance to the patient, lead him or her to believe that his or her case is a bad one. Such persons are not likely to suffer much inconvenience from any radical plan of treatment that may be adopted, and no doubt it is the result of this class of cases that lends great encouragement to the old methods' operations.

When Kelsey, after having deposited five drops of a carbolic acid solution in the center of a large tumor, observed the tumor looking dark, angry and inflamed from the intrusion of a foreign substance, that would have been a fitting moment for the injection of a sufficient quantity of carbolic acid to have pervaded the entire structure, and in sufficient strength to have thoroughly cauterized the mass, and thereby to have stopped the circulation and checked the inflammatory action at once. He then would have found great solace in the liberal application of hot water through the medium of a suitable sized, soft sponge.

The method that I adopt and recommend for the removal of hemorrhoids, not only does the work more neatly than the more heroic measures in vogue, but robs the patient of the terrors of etherization, as well as the dreaded consequences incumbent upon and more or less inseparable from operations of violence in a peculiarly organized and sensitive locality; and, as Dr. E. F. Hoyt, of New York, says: "There is not a hemorrhoidal case possible which

cannot be obliterated by this means, and I am at loss to explain why so many cling to methods that carry so much havoc and suffering. If every college in the land would have this subject demonstrated by men of experience and learning, all other methods would soon lose recognition."

I know of no better way of contrasting the plan laid down for the application of the injection method of treating hemorrhoids, by the authors to whom allusion has been made, and that of my own and its results, than by instancing a few cases treated by me of quite recent date, and of more than common interest on account of some of their associated history.

CASE I.—Manuel L., aged 41, capitalist, had arranged his business affairs and prepared for the possible results of a ligature operation. All being in readiness, he was placed on the operating table by a prominent surgeon, who, upon examination, found the hemorrhoids to look so formidable in appearance that he, the surgeon, refused to proceed further, stating that the operation might prove fatal. On the gentleman's first visit to me, he was asked to use the commode and strain out the piles. This having been done, a large, hemorrhoidal mass was seen to occupy nearly one-half of the circumference of the bowel on one side, with five distinct and typical tumors on the other, similar to Fig. 7. He was directed to lie on the operating chair with the large growth on the upper side, and about thirty minims of the carbolic-acid solution were injected into the mass in three places, the protrusion returned and the bowels constipated for four days. The bowels were then moved by an enema of slippery elm water, when not a vestige of the growth could be seen, and there was no pain produced by nor following the motion.

He put his hand back to replace the prolapse, as he had been accustomed to do for the past eight years, and found nothing to replace, whereupon he said if this had occurred in the day of miracles, he would think one had been performed. One operation was required for the remaining five tumors, and both the piles and the prolapse were cured by two operations. In fact, the small tumors should have been taken first, when the opportunity to get at them was much better.

The first operation was followed by some pain, which was not severe but lasted about fourteen hours, and was controlled by the

introduction every two or three hours of an opium and belladonna suppository. He stated that he was just getting over an attack of *la grippe* and had been purged pretty freely, consequently the bowels were not evacuated previous to the operation, but a liquid diet was advised for the first three days afterward.

CASE II.—George P., aged 37, druggist, had a continuous hemorrhoidal mass occupying both sides of the bowel when prolapsed, being separated only by an anterior and a posterior commissure. Glaring fibrous bands seemed to bind down the enlargements in places, presenting anything but an inviting case. He also had attached just above the verge an eroded and an irritable arterial hemorrhoid, constantly hanging out and exciting the external sphincter, and which looked like and was about as large as a medium-sized strawberry.

The history of the case and the ungainly appearance of the protrusion induced me to have it photographed. It is approximately represented in Fig. 8, which does not, however, show the fibrous bands. The patient was placed on the side opposite the larger mass, and injections made into the mass at four different points. The bowels were constipated for four days afterward by the occasional introduction of an opium suppository, and then moved by an enema, when the man was overjoyed on having no pain at stool, and finding no protrusion on the side that had been treated. The next operation took the mass on the other side together with the strawberry growth, and the case was discharged, cured both of the piles and the prolapse.

Both of these gentlemen had been told time and again that the carbolic-acid treatment was ineffectual and dangerous. One ex-army surgeon and college professor said he would not attempt any of the heroic operations in the second case, as there was too much tissue involved; that he would only agree to treat it by making local applications twice a week, and would not promise any results inside of ten months, asking twenty dollars per month. He would not swerve from his opinion and could not say that a permanent cure would then be effected.

CASE III.—Jane D., nearly eighty, afflicted many years, had consulted fifteen physicians, all of whom refused anything more than temporary relief because of her extreme age, she having always

been considered delicate, with cataract now forming in both eyes. She said she would be satisfied if she could live not more than two years after a cure.

The tumors were "old bronzed veterans," tough and unyielding. One side was taken at a time, and although confined to the bed mostly for the first seven or eight days after each operation, she could get in and out at any time without assistance. She had no constitutional disturbance, never missed a meal, and was able to go up and down stairs unattended inside of eight days after the second and last operation.

The dead piles embraced by the coagula were much longer in separating from the bowel, and their bases of attachment longer in healing than in average cases. Hot-water sponge compresses together with opium and belladonna suppositories were frequently used for the first twenty-four hours, then occasionally for the next three days, after which hot-water irrigations and iodoform suppositories were substituted. An occasional dose of sulphur and bitartrate of potash was given, and the bowels moved by flushing the colon, which was resorted to but twice.

In this case the edges of the thickened, calloused mucous membrane of the bowel where it joined the hemorrhoids, appeared to be so cartilaginous in places that I expected hard ridges would be left; but they all softened and disappeared by the application of a few simple remedies in ointment form. At one point a small polypus sprang up, which withered from the injection of a few drops of pure carbolic acid.

The lady could not repress her feelings of emotion, in expressing gratitude for the services rendered, but gave way and freely cried. Although in rather poor circumstances, she did not think a charge of fifty dollars sufficient and afterward returned, saying that she felt she could not die happy unless I was better paid, and insisted upon my taking another "twenty."

CASE IV.—Joseph C., aged 57, had a hemorrhoidal mass situated on one side of the rectum, measuring one and one-half of an inch in length, and a little over one inch in width. A peculiarity of the formation was seen at its lower, or inferior attachment. Here the growth arose at right angles to the surface of the bowel, and gradually curved outward, presenting a slightly crumpled, over-

hanging edge, and a flat top. The bowels were thoroughly evacuated just before the operation by flushing the colon, which brought down and exposed the prolapsing mass more completely to view. Injections were then made into the mass by puncturing it in several places on its top, or flat aspect, reduction effected, and principally a liquid diet imposed for the first four days.

On the morning of the sixth day, five days after the operation, the bowels were moved by an enema of hot water containing a teaspoonful of borax to the quart. The action was painless and remarkably interesting to the patient, for there was not the slightest tendency toward a prolapse. It was also noticeable, thereafter, that the mucous membrane protruded more during stool on the side unaffected than that on the side from which the mass had been removed. The after-treatment consisted in the administration of a few doses of sulphur, tablet form, and the application of the Canada pine and witch hazel combination. Except a sensation of fullness and weight, there was no pain for eight hours after the operation. The pain then was mild, hardly sufficient to prevent sleep, and subsided after the introduction of two suppositories.

CASE V.—Mr. M., aged 59, was a subject of chronic diarrhœa as well as internal hemorrhoids of unusual magnitude and form, and when treated for the latter was greatly emaciated, weak and tremulous. Both diseases were contracted while in the army during the Civil War. The most noticeable features of the hemorrhoidal part of the complication were found in the attachment of the tumors, there being no line of demarkation, and in their texture, which was almost as hard and impermeable as a fibrous polypus. The hemorrhoidal disease was entirely eradicated by two operations. No pain followed the operation on one side and but very little from that on the other. The diarrhœic condition and a tendency to paralysis of the bladder were the greatest difficulties encountered during the course of the treatment. The discharges from the bowels were small, watery, and almost involuntary. No prolapse occurred from the motions, the sphincters being in a semi-paralyzed state; a condition which, I hold, is always produced by an operation on hemorrhoids involving considerable bowel surface.

CASE VI.—Mr. H., aged 52, was afflicted with large prolapsing internal hemorrhoids of many years' standing. The tumors occu-

pied both sides of the rectum, nearly encircling the bowel, and had, in places, large cavities filled with blood exhibiting strong arterial pressure. Contrary to my accustomed rule I took both sides and operated on all tumors at one time, using about three drachms of the solution for the purpose. In consequence of the extent of the operation and the gravity of the case, the patient was directed to go to his place of residence and keep mostly in the recumbent posture for four days, and partake principally of a liquid diet. After the lapse of five days, his bowels were moved by the aid of an enema, and there was no pain attending the motion, nor was there pain at any time during the entire course of the treatment except an occasional feeling of uneasiness and discomfort, which was relieved by the introduction of an opium and belladonna suppository. The patient was discharged and out in six days, although he had been reduced previous to the operation from the effects of bronchial fever, and was coughing and expectorating more or less all the time, conditions contraindicating an operation under the old rules.

RÉSUMÉ.

Do not operate on hemorrhoids while they are inflamed and the rectal vessels engorged.

Always operate without using a speculum unless the tumors should be so small that they are not otherwise accessible.

Operate, for convenience, with the patient lying on the same side as that upon which the tumor or tumors to be operated upon are formed.

When hemorrhoids occupy both sides of the bowel and two operations have been decided upon for their removal, operate first on the side upon which the smaller growths are attached.

Handle the parts with extreme gentleness and deliberation, and protect them from excoriation by waste and overflow of the solution.

Evacuate the bowels previously and constipate them for four or more days after an operation on large tumors, or when several small ones are taken at the same time.

Hot water frequently applied to the anus by means of a large, soft sponge, or flannel cloth, is indispensable and unequalled for the relief of pain and soreness, and to reduce swelling. To be effective, it should be applied as hot as can be borne.

Wait until the soreness disappears before performing a second operation. This will require from one to two weeks, the time varying with the extent of the first operation and the physical condition of the patient.

Take great care to perform a neat operation. A certain amount of ingenuity and tact is required, which, unfortunately, all do not possess. If a bungling job be made, the bowel punctured, and the surfaces excoriated, do not attribute an unnecessary amount of pain and suffering to the preparation used or the method employed. Familiarity with the parts, and skill and dexterity in operating on hemorrhoids by injection, are as necessary to facilitate the success of the treatment as are such qualifications in performing operations on other delicate parts of the body.

NEEDLE AND SYRINGE.

The size of a hemorrhoidal needle is of no little importance in doing neat and effective work. The needle should be fitted with a screw to gauge the depth of its insertion, and no larger than will barely allow the preparation to pass through; the smaller that can be used the better. Its entire length from socket to point need not be over three inches. A 24 American wire gauge, the size many use for hypodermic injections of morphine, is found to be the most suitable. Insist upon this size and accept no other. Instrument dealers will usually send or recommend what they have in stock. In no instance have I found a ready-made hemorrhoidal needle of 24 gauge. With a large needle the preparation can not always be carried to or confined just at the place where it is wanted. An unnecessarily large opening is made, through which, particularly at the upper attachment of the tumor where the large, nutrient vessels come down and the arterial pressure is strong, blood sometimes flows freely, often necessitating the return of the needle a number of times at the same place. Another place which more fully demonstrates the advantages of a small needle is at the lower surface or attachment of the tumor. Here the covering of the growth is more dense or fibrous in character, which it is desirable to cauterize as much as possible without encroaching upon the bowel structure. With a small needle the solution can be deposited just beneath this tissue or into it, as if making intra-dermic injections.

A common glass barrel metal-bound hypodermic syringe, provided with side handles, Fig. 14, is generally used, and all that is needed, although it is not as desirable for performing extensive operations as a syringe of the same style with a capacity for holding one drachm, on account of the time lost in having to stop during the operation for the purpose of refilling the syringe. Draw up the solution into the syringe before screwing on the needle, screw on the needle, force out the air, and gauge the nut on the piston for about five minims. (See operation, page 37.)

When a syringe is not kept in constant use, the piston will dry out and stick to the barrel. This is remedied by setting the nut on the piston, when laying the syringe away, so that the piston will not go quite to the bottom of the barrel. When it is desired to use the syringe, screw back the nut, say one-sixteenth of an inch, then, with the thumb on the piston handle and finger on the cap at the other end, press together, thus freeing the piston.



Porcelain Mortar.

A small, porcelain mortar made for the use of dentists for mixing amalgam, is a good receptacle for the solution before drawing it up into the syringe.

ACCIDENTS.

MARGINAL SWELLING AND ABSCESS.

A marginal swelling followed by an abscess, appearing the third or fourth day after an operation on internal hemorrhoids, is produced by excessive irritation. I have never known it to occur except when the patient disobeyed instructions and exercised inordinately. In one instance in a case of long standing, in which the hemorrhoids occupied both sides of the rectum between the sphincters, I took both sides, and operated on all of the tumors at the same time, enjoining rest and quiet. The patient afterward rode a long distance and walked a half-mile, which caused an unusual amount of pain and soreness, and, acting without advice, he took on the third day a dose of castor oil, with the result of farther increasing the local irritation and hastening the formation of a very painful marginal swelling. Being a strong man up to this time, he had used

no palliative measures whatever, and only then informed me of his suffering. Hot water and a sponge soon eased the pain, and a superficial abscess developed, which broke in two places, both external, and no doubt would have left a small, subcutaneous fistula. The skin between the two openings, which did not involve any muscular tissue, was cocainized and slit up, and a good recovery followed.

According to my observation and belief, an operation on piles situated just above the verge of the anus, and in proximity to the network, or plexus, of nerves surrounding the anus, is more likely to be followed by a marginal swelling than an operation on others, particularly if the operation be improperly performed, and an irritating quality of carbolic acid be used. It might also be stated that pain varies in intensity as the seat of its origin approaches the verge of the anus, one of the most acutely sensitive surfaces of the body. A small, sensitive pile not larger than a salmon egg, situated within the grasp of the external

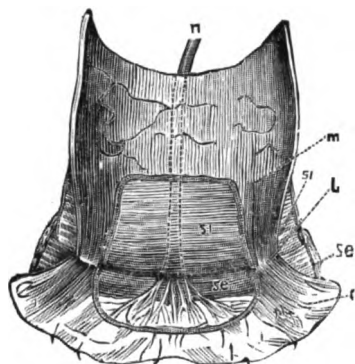


FIG. 18. Diagram showing nerve supply of anus. (Hilton.) M., mucous membrane. C., skin. S. E. and S. I., position of sphincters. L., Hilton's white line. N., nerve.

sphincter, will keep up an excitement and a contraction of the muscle sufficient to disturb and put ill at ease the entire animal economy.

A swelling, or lump, which often appears immediately after an operation on piles of any considerable size, just above the verge, is of no consequence and will subside within a few days. A similar swelling sometimes results from a severe attack of internal hemorrhoids, which some speak of as the developing of an external pile, but I do not see that such formations are anything more than marginal swellings caused by the irritation above.

SPASM OF THE SPHINCTER.

A spasmodic contraction of the sphincter complicating recoveries after an operation on internal hemorrhoids by injection, is due either to extreme sensibility of the internal sphincter or to a destruc-

tion of some of its superficial fibers or to the presence of a fissure which may have escaped notice, and occurs only in certain highly organized nervous temperaments. By the expression, "spasm of the sphincter," it may be well to here inform the student, is meant a painful contraction of the external sphincter, though the cause may be and most usually is entirely above this muscle. (See page 127.) The spasm may be recognized by a feeling of tightness of the muscles, and either a gradual culmination or a sudden outburst of pain at irregular intervals, without any apparent cause. The pain simulates that of fissure, and may not occur oftener than once in twenty-four hours, or after each rectal evacuation; it is sometimes very intense while the paroxysm lasts, giving rise to needless alarm.

The patient may be assured that the paroxysms of pain will gradually become less as the changes take place, but if the injection has been made rather deep, the muscular coat of the bowel denuded by the sloughing of the tumor, leaving a sensitive surface exposed, pain may be expected after each movement for a period of one and possibly two weeks thereafter. Soothing applications are to be made to the unprotected surface by the use of a syringe or an ointment applicator, and the bowels not allowed to move oftener than once in three or four days. The evacuation is then best effected by the flushing process.

Those subject to spasmodic contraction of the sphincter, I have always found, take kindly to general anæsthesia, and should the paroxysms of pain show little or no signs of abatement under palliative measures, forcible dilatation of the muscles is the only rational expedient at our command. Ask the patient to inhale a little chloroform for relief, and then, after enough has been taken, dilate, regardless of the hour. Should there be present an undiscovered fissure which has been aroused by the operation and gives rise to the spasm, the fissure will be cured; likewise an existing constipation due to a lack of expulsive power of the rectum. If the mucous membrane has prolapsed and become swollen from sphincter compression, the prolapse will recede and the swelling disappear by this procedure; therefore, do not hesitate to dilate any time the case calls for it. In one case, during my experience, the spasm began shortly after the operation on the hemorrhoids, and continued. Dilatation quelled the storm like pouring oil on troubled waters.

CARBOLIC-ACID POISONING AND EMBOLISM.

Shortly after the carbolic-acid plan of treating hemorrhoids was discovered, when the method was in its infancy and still in the

hands of itinerants, whose marvelous cures attracted widespread attention and aroused the profession to jealousy, carbolic-acid poisoning is said to have occurred in one instance, and embolism of the liver in eight instances. Notwithstanding that no such accidents have been reported of late years, and that there is not the slightest probability of their occurrence from anything like a rational application of the method, there are still some who are inclined to subvert the treatment by enlarging upon the danger of these two accidents.

The danger of carbolic-acid poisoning or embolism of the liver arising from the treatment of hemorrhoids by carbolic-acid injection, it may be reasonably concluded, rests entirely with the strength of the acid that is used for the injection. If the solution employed be weak, there is a certain amount of danger attached to the method, though slight, as shown by that period in the history of the treatment when the exposure to such danger was the greatest; but if a strong solution be used, fifty per cent or more, there is no reason whatever to fear that any of the acid will be absorbed or that a blood clot will escape into one of the hemorrhoidal veins and lodge in the liver. This conclusion has both theoretical and practical support.

Dr. Howard Crutcher, of Chicago, writes me that he has treated by injection eight hemorrhoidal tumors at one time, using 160 drops of pure carbolic acid therefor, with the result of obliterating the tumors without the slightest untoward symptom. Why does not the acid in such quantities and strength produce carbolic-acid poisoning, when we hear of two, three and five per cent solutions being objected to in laparotomies on account of the liability of its absorption and danger to be feared from its poisonous effects?

I have always maintained that there is absolutely no danger of carbolic-acid poisoning from the local use of strong solutions, and I am borne out in my belief both by reason and experience. In strength from fifty per cent up, carbolic acid will cauterize the tissue of a hemorrhoid as effectually as the hot iron, and will strangle the circulation at once. It coagulates the albumen instantly, and spends its force and exhausts itself right there and then, leaving none to be absorbed. Likewise strong solutions guard against

the possibility of embolism by forming a tough, compact, and an insoluble coagulum; the coagulum being strengthened and its component parts closely bound together into one solid, conglomerate mass by the fibrous tissue forming the network of a hemorrhoidal tumor. Add to this effect of the acid that of the acetate of lead contained in the solution recommended for the treatment of hemorrhoids by injection, and there is no reason to believe that a clot formed and secured by the combined action of the two agents, is any more likely to break down and a fragment pass into the circulation than would a clot formed by the actual cautery. The acetate of lead acting by its quick astringent effect conjointly with the cauterizing effect of the acid, serves to close the vessels communicating with the tumor, and at the same time assists in solidifying the clot by uniting with a certain portion of the albumen of the blood, forming the albuminate of lead, as mentioned when giving the formula, while outwardly the lead acts to compress the clot by contracting the fibrous tissue around it.

There can be no embolism without circulation, and there certainly can be no circulation in a tumor or part of a tumor treated as described; neither can a tumor thus treated inflame, for the palpable reason that inflammatory action cannot take place in a tissue destitute of circulation. Carbolic acid in the strength named combines the properties of a cauterant, a local anæsthetic, an antiphlogistic and an antiseptic.

What argument can be advanced with more appalling effect to influence patients against the hypodermic method of treating hemorrhoids, by physicians who are biased by the unfriendly literature of the subject, than the hyperbolic abscess of the liver incidental to embolism? This is a bugbear but a little less frightful for a patient to contemplate than a possible death from lockjaw sometimes occasioned by the ligature operation. Of the 3,304 cases of hemorrhoids collected by Andrews, that had been treated by itinerants, ignoramuses, etc., one case of abscess of the liver is reported. There were a few other accidents discovered, and it is astonishing that many more have not occurred when we take into consideration the utter reckless and irrational manner in which the many different and sometimes positively dangerous preparations have been used,

The comparatively few accidents and irregularities which took

place when the treatment was in its primitive and undeveloped state, and surrounded by adverse and unfavorable circumstances, should not only be looked upon in the light of an instructive and profitable experiment, but of themselves go far toward establishing the safety of the plan under anything like rational measures, and, at the same time, they furnish suitable material from which to gain hints whereby objectionable features may be properly studied and overcome.

We can readily understand how a frail and imperfect coagulum may separate and a portion be carried into the circulation, or how a coagulant of any kind, slowly injected into the caliber of a coursing vein, may produce embolism and harm result. We can also understand how a preparation that forms a circumscribed, firm, and imperishable mass, or coagulum, when injected into a large vein in sufficient quantity to encompass its walls, would not only perfectly occlude the vessel but would completely obliterate it, and thus prove to be an inoffensive and a safe procedure. As before stated, hemorrhoids are not found higher in the rectum than the upper margin of the internal sphincter, a distance of an inch, called by some the pile-bearing inch. The anatomy of the parts and the pathological formation of hemorrhoids show that the venous type forms upon or is implicated in the network or plexus of veins which goes to make up the hemorrhoidal veins, and not upon the veins themselves, and the operator, therefore, would have to go considerably out of his way to find a large, straight vein in which to stick a needle. But all theory and rationale apart, the tree is to be judged solely by its fruits. If anything but a permanent cure has resulted in a single instance in my practice, extending over a period of many years, let the known facts militate against my method of applying the treatment and the success I claim for it.

Glycerine having a strong affinity for water and being the solvent used in the preparation I recommend for the treatment of hemorrhoids by injection, tends, by osmotic action, when placed in the interstices of a hemorrhoid, to draw the water from the adjacent tissues to the already cauterized, dead and hardened mass rather than to dissipate or drive anything from it, and in that way theoretically acts against the departure of any imaginary stray globule, which is likely to be sucked from the proximal side of a

ligature, the eschar by the clamp and cautery or the perishable mass by crushing as by the method herein advocated. In relation to embolism arising from the treatment, Kelsey says: "As for embolus I can see no more reason why the clot formed in this way should become detached and pass into the general circulation, than should the clot formed on the proximal side of the ligature."

SECONDARY HEMORRHAGE.

With the present state of advancement in the treatment of hemorrhoids by carbolic-acid injection, secondary hemorrhage is now only thought of as a possible accident, which may happen under certain rare and easily defined conditions. Should the portal circulation become obstructed, throwing the force of the blood current back upon the hemorrhoidal veins, about the time the tumor is thrown off or at any time before the healing surface becomes strong, the unsupported and weakened walls of the exposed vessels at the seat of the operation, may give way under the pressure, and let loose the floodgates of the superior hemorrhoidal veins, which have no valves to check a backward flow.

A stagnation of the portal circulation leading to plethora of the hemorrhoidal veins, at the critical time named, would be a circumstance, it is not difficult to understand, that would be strongly conducive to secondary hemorrhage. To forestall a possible occurrence of this kind, small doses of sulphur should be given, in bad cases, on the day previous to that upon which it has been decided to permit a movement after an operation, and its use continued for several days afterward. Both sulphur and witch hazel are highly esteemed for their beneficial effects upon the circulation of the internal hemorrhoidal system, preventing venous engorgements of the rectum, and hastening recoveries after operations on this organ.

To meet with a severe rectal hemorrhage, with the means heretofore advised for its control, would probably disconcert the inexperienced physician more than it would to be confronted with the impending dangers of a case of placenta prævia. In lieu of procuring anæsthesia, dilating the sphincters and attempting to fasten a ligature upon, passing a curved needle beneath, or twisting the wounded vessel, or resorting to the tampon for staunching the flow,

introduce into the rectum two or three pieces of ammonio-ferric alum about the size of a large suppository or larger. The pieces of ferric alum should be slightly smoothed and lubricated with vaseline before being inserted, and preceded or followed by the injection of one-half grain of morphia. Ammonio-ferric alum is less irritating and hence less painful than any of the other powerful styptics, and a number of pieces of the compound salt may be introduced into the rectum, if found necessary, without doing harm.

Should the hemorrhage be quite free, the pieces of alum may be expelled before a sufficient amount can be dissolved to astringe the broken vessel. In such event make a strong solution of the alum and inject two ounces or more with the one-half grain of morphia immediately after the rectum has been evacuated of the accumulated blood. If, however, the bleeding point can be approximately located, it will be better to use the finger and piece of cotton to astringe and compress the vessel, as mentioned on page 66. Should the sphincters be tight, the parts sore, and the patient difficult to handle, do not hesitate to administer chloroform and dilate the muscles. Dilatation alone may be sufficient to stop the bleeding, though it will not be injudicious to apply a clamp forcep to a suspicious looking place and a styptic after the forcep has been released.

To as many of the profession as do not know its value, I desire, at a risk of pardon for the digression, to call attention to the "alum plug" for controlling uterine hemorrhage after an abortion or a miscarriage. A chunk of ammonio-ferric or common alum is shaved down to the size of a hen's egg. A hole is made through its center for the purpose of retaining a stout cord, which is used to remove the plug from the vagina after it has remained there overnight. The vagina is then to be irrigated once or twice a day by an antiseptic solution, as is usual in such cases. No one who has a knowledge and makes proper use of the "alum plug," need go to a case of uterine hemorrhage with "fear and trembling." It is reliable and harmless.

The one point to keep foremost in the mind when attempting to arrest hemorrhage, is that the value of the agent employed for the purpose will depend upon its power to effect and maintain a compressing influence on the vessel in some manner, compression being essential to the action of all remedies successfully

used in the control of hemorrhage. This statement may not at first seem tenable outside of the action of the various mechanical appliances used, such as the ligature, the compress, torsion, etc.; but by adverting to the action of the other and less efficient, though often more convenient class of hæmostatics, as styptics, the effects of cold, and nature's process, it will be seen by comparison that the principle by which the vessel is occluded by the latter is the same as that of the former, compression being indirectly effected.

The principle of the action of hæmostatics and the value of its application, were strongly suggested to me after having severed two small arteries in the removal of an external growth by excision. Instinctively the finger was placed over the mouths of the spurting vessels, and pressure made. No more blood escaped, and the act itself, while not new, and the most natural thing to do, exhibited a plan noticeable both for its simplicity and its special adaptability to the parts. A small piece of absorbent cotton rolled into the form of a ball was substituted for the end of the finger, and retained in place, as directed under the treatment of external hemorrhoids, by larger pieces of cotton and the T-bandage. The amount of pressure required of the retaining bandage is not sufficient to be uncomfortable to the patient, who is able to walk out of the office unattended, and with little knowledge of any disposition toward arterial hemorrhage, or that more than ordinary importance is attached to the cotton compress.

For a period of about three years I relied upon the cotton compress alone to prevent bleeding after the excision of any tissue about the anus. During this time I was occasionally called upon to stop bleeding due to a disarrangement of the dressing. To forestall occurrences of this kind I thought it wise in some cases to ligate any small vessel that had been divided. It was through the application of the forceps for the purpose of ligaturing that I learned no ligature is necessary. See page 175. The clamping of any vessel or bleeding surface of small size inside or outside the rectum is sufficient without twisting to effectually stop hemorrhage.

Any physician ought to know as much as I have here stated, it might be said, but if governed by the commonly accepted surgical practice, it is fair to presume that many do not. A recent author advises as a precautionary measure for the prevention of hemorrhage after the removal of an external growth by excision, that the

tumor be caught up at its very base with a pair of four-pronged forceps, firmly drawn out, and the skin divided all around it, up to the mucous membrane on each side, with a sharp bistoury, a silk ligature is then to be thrown around its base, tied lightly, and the tumor cut off close to the thread. This procedure not only prolongs the operation and the time of recovery, but increases the local irritation by the presence of the ligature, and is certain to be superseded by the more simple plan of immediate excision, clamping, and compression.

The departure from the subject of secondary hemorrhage made in discussing the action of hæmostatics, together with the methods recommended for controlling secondary hemorrhage, conveniently furnish, under the one heading, ample suggestions for the treatment of any form of hemorrhage occurring in the vicinity of the anus or within the limits of the sphincters, whether primary or secondary, arterial or venous. Hemorrhoids not being found higher than the upper margin of the internal sphincter, a distance of an inch, secondary hemorrhage resulting from an operation on them must find its origin somewhere within that inch, and can be easily reached with the finger. The finger, therefore, may be conveniently used to carry a styptic to and effect compression upon a bleeding vessel in any case of secondary hemorrhage due to an operation for the removal of internal hemorrhoids.

Either persulphate of iron or powdered ammonio-ferric alum, combined with a little morphia, may be conveyed to the ruptured vessel in a small piece of wet absorbent cotton, and held there by the end of the finger until the hemorrhage ceases. A few minutes will usually suffice to control the bleeding, the cotton being allowed to remain in place after the finger has been withdrawn. Knowing where you operated will be a guide to the place of application.

I have never known secondary hemorrhage following carbolic-acid injection into hemorrhoids amount to anything more than an easily controlled venous hemorrhage, nor have I had a single case of secondary hemorrhage occur in my practice of late years, or since I have made a special study of and become more familiar with the injection method. When hemorrhage did occur it was owing to the injection having been made, through mistake, deeply into the tissue of the bowel, while unnecessarily using a speculum through which

to operate, and when yet a novice in the treatment and my ability to discriminate was poor. It was then excited by straining at stool from a dysenteric condition of the bowels, superinduced by an obstructed portal circulation.

Rectal hemorrhage is seldom discovered, when the spincters are intact and unrelaxed, before the rectum fills sufficiently with blood to create a desire for a movement of the bowels, and the blood has been expelled at the closet or into the chamber. Even then, unless blood has been seen or suspicion aroused, the true nature of the discharge may escape the notice of the patient, who is led to believe from the fluidity of the evacuation that he is inclined to dysentery, and blood may fill the rectum the second or third time before the real situation becomes known and the alarm given. In some instances the blood accumulates in the colon, and there may be no outward expression of hemorrhage before the patient experiences a sensation of fullness in the bowels, followed by slight colicky pain, faintness, and the expulsion of a large quantity of blood at one time.

While speaking of hemorrhage from the rectum, it may be well to refer to some rare forms of the trouble. Kelsey mentions two cases of *nævi* of the rectum. In one case, an adult, the earliest symptom, he says, was an attack of diarrhœa accompanied with great loss of blood, and the whole history of the case was marked simply by these two symptoms alternating with occasional constipation, there being no particular pain or discharge of any kind. The patient finally became exsanguinated from repeated hemorrhages, and death ensued. The other case was that of a girl, aged ten, who had suffered from repeated severe hemorrhages since the age of two. Examination revealed a *nævroid* growth completely surrounding the lower end of the bowel. The result of this case is not given. The same author reports two cases of hemorrhage from the rectum in infants not over three days old, both of which ended fatally. A post mortem examination showed, in one of the cases, that the blood came from an opening in one of the rectal veins about three inches from the anus, which admitted of the introduction of a bristol. No autopsy was obtained in the other case, and the precise source of the hemorrhage is unknown.

If from any cause a rectal hemorrhage is thought to proceed from a vessel of large caliber, the exact location of which is not

known, and there is reason to believe from the circumstances of the case that pressure cannot be made upon the right point without packing the rectum, no time should be lost in pursuing such a course. Allingham tampons the rectum by first procuring a medium-sized, cone-shaped sponge, through the base of which a strong ligature is passed to the apex and returned, including in the loop a considerable portion of the apex, so as to prevent the ligature from tearing out when traction is made upon it. After wetting the sponge, squeezing it out and filling its lacunæ with iron persulphate, it is passed up into the rectum, through a suitable speculum, for a distance of five inches or more, the apex being upward and the two ends of the ligature remaining outside. The ligature is then made tense, while the whole rectum between the base of the sponge and the sphincter is firmly packed with pledgets of cotton-wool well dusted with the iron. When the cavity is filled, the sponge should be drawn down by means of the string and the whole mass tightly compressed. If the bowels have been well emptied, the packing is allowed to remain in for a week or more. If, however, it is intended to leave the packing in for such a length of time, a large-sized, stiff male catheter should be passed through the sponge adjacent to the ligature, and the cotton packed around both it and the ligature. The object of the catheter is to give the wind and liquid feces a chance to escape.

Mathews advises that the tampon be made in one solid piece previous to its introduction into the rectum. His plan is to first procure a piece of hard rubber tubing eight inches in length, around which is to be firmly wrapped absorbent cotton, beginning about one inch from one end and extending toward the other for a distance of five inches. The cotton is to be wrapped in such a manner that the tampon resembles a double cone in shape, or two cones with their bases in apposition. The circumference of the tampon in the middle should be fully six inches, gradually tapering toward each end. The whole tampon is then to be firmly wrapped with a stout cord which is tied at its lower end and a double thread allowed to hang down. After the tampon has been soaked in Monsel's Solution diluted one-third to one-half, the patient anæsthetized and the sphincters well dilated, the tampon is to be pushed up the rectum for fully five inches and then slightly drawn back

against the internal sphincter. The tampon is allowed to remain in the rectum for four days.

SLOUGHING AND ULCERATION.

The extensive sloughing that has been so strongly urged against the carbolic-acid plan of treating hemorrhoids, I have never experienced, and I am unable to conceive of such an occurrence except it be in a very low state of vitality, which would fare no better from the effects of any other kind of an operation, but I can imagine how a pile would break down and slough if a few drops of carbolic acid were deposited in its center or deeply into its base, leaving the apex and the greater portion of the growth with a free circulation, a condition, as I have said, that would most surely induce prolonged pain and suffering. A weak solution taking effect in the interstices of a hemorrhoid by curdling the blood, but not strong enough to attack and deaden the fibrous tissue forming the network of the tumor, would have a tendency, it will be seen, to excite inflammatory action in the fibrous tissue, and give rise to painful sloughing. The irregular and uncertain action of weak solutions, as has been intimated, is explained by the variable texture of the fibrous tissue entering into the formation of hemorrhoidal tumors, together with the disposition of the tissue, in different subjects, to or not to take on inflammatory action; for a pile with a thin, delicate covering and a delicate internal structure can be cured by an injection of water without producing much local disturbance, while those of a tougher organization, or more fibrous in their structure, would only be exasperated by such annoying treatment, and behave in a bad manner.

When the operation has been carelessly performed and the injection made deeper than necessary, not only are more swelling and pain produced by the injection, and a longer time required for the local disturbance to subside, but the place from which the tumor has sloughed does not heal as readily, remains tender, and may occasion more or less pain after stool by exciting a contraction of the sphincter, particularly, as explained when speaking of spasmodic sphincter, with patients whose temperaments predispose them to spasm of the muscle. Sometimes the mucous membrane at the inferior border of the sore, is left in abnormal condition, and looks to be raised in

a thickened fold, exhibiting at its upper extremity a whitish or a polypoid appearance. The proper treatment for such a condition of the mucous membrane, should it persist after the swelling and most of the soreness have disappeared, is to inject enough cocaine into its base to produce local anæsthesia, then raise it with a tenaculum and excise it with a pair of curved scissors, the hemorrhage being controlled, should there be any, by the cotton compress, as recommended for the control of hemorrhage after the removal of an external growth by excision. The compression exerted by the sphincters on a small piece of absorbent cotton placed over the cut surface, is often sufficient within itself to control the bleeding without applying the T-bandage.

If much of the muscular tissue has been destroyed by the injection, leaving a concave surface to fill by granulation, the granulations may become unhealthy in some instances, and delay the healing process. An indication of unhealthy granulations is the occasional presence of a small quantity of blood at stool. When unhealthy granulations are suspected, a speculum should be inserted, the sore exposed, and the granulations broken down. The ulceration produced by deep injections usually heals kindly, and with little more than the ordinary treatment, but should it act stubbornly, or show a disposition toward chronicity, the same variable treatment may be required to heal it, as is sometimes required to heal a fissure, after the fissure has been converted into a simple sore. The formula of an efficient ointment for simple, chronic ulceration was obtained by analysis from a nostrum called an "ulcer specific." It consists of resin, chian turpentine, and mutton tallow, each 1 part; bayberry (myrtle) wax 2 parts; olive oil 5 parts. Mix and use with an ointment applicator once or twice a day.

In concluding the subject of accidents, I wish to call attention to the unreasonableness of condemning a treatment possessed of the advantages that we have in the carbolic-acid treatment, on account of the possible occurrence of a few avoidable, and it may be justly said not dangerous accidents. Kelsey, in his book on "Diseases of the Rectum and Anus," says of the treatment: "Originating as it did among the quacks, it has been looked upon with suspicion, and its adoption by the profession has been followed by the accidents which generally attend a new remedy before its application is fully

understood; but this does not diminish its real value. I wish now to emphasize what I wrote in the first edition of this work in favor of this method of treatment. For the past year I have treated nearly every case of internal hemorrhoids for which I have been consulted, by this method alone, and the favorable view I then held regarding it has only been confirmed by subsequent experience."

If all other methods were perfectly safe, and entirely free from accidental disturbance, the argument brought against the carbolic-acid plan of treatment on the plea of its liability to accidents, would be hard to overcome; but we all know that excessive and prolonged pain (causing in some instances lockjaw and death), retention of urine, sloughing and stricture by contraction of tissue, abscess, fissure, fistula, intractable ulceration, hemorrhage (either primary or secondary), great and lasting prostration, and slow recoveries (saying nothing about the dangers and inconveniences of anæsthesia), are not so very uncommon when the more heroic methods are practiced. Only a few months since, my attention was attracted to a gentleman of prominence, in middle life, of strong body and good habit, who had been operated upon for the removal of piles by the ligature. He was seven months in recovering, during which time two fistulæ developed.

RELAPSES.

A recurrence of hemorrhoids after treatment and an apparent cure by carbolic-acid injection, is one of the strongest points adduced by the opponents of the method. It is needless to say, to those who have had experiences, that the argument is valid only in so far as it applies to the sequences of the treatment by the weaker solutions.

It will be conceded that many cures are effected by weak solutions which remain permanent. It will also be admitted that many cases yield to various kinds of local applications and cease troubling thereafter, and that some tend to a spontaneous cure. Evidently such results are confined to that class of cases in which the hemorrhoidal structure is delicate, and the predisposing and exciting causes are not overly potent. Hemorrhoids, well organized and made up largely of fibrous tissue, are not curable except by recourse to some sort of a radical operation, although they may be shrunk by palliative measures, in some instances, and rendered more or less passive for an indefinite length of time.

The same causes operating, some hold that relapses will and often do occur after the removal of hemorrhoids by any of the operations known to the profession. This statement is certainly not borne out by reason and observation. A radical operation, by which I am to be understood as an immediate or a timely removal of the tumor in substance, either destroys the vessel or vessels upon which the tumor forms or by which it is sustained, or the coats of the vessel or vessels become so thickened and strengthened by inflammatory action leading to hyperplasia, that relapses do not occur.

Personally, I have not been able to find a single authenticated case in which there has been a return of hemorrhoids at the same place; or upon the same part of the hemorrhoidal vein or veins, from which they had been once properly removed. Persons who were suffering from hemorrhoids, after they had submitted to the knife or ligature some years before and pronounced cured of the disease, have made application to me for treatment, in none of whom could be seen the slightest tendency toward a renewal of the growths at the seat of the operation. Tumors were found on the opposite side or on both sides of the bowel, with an intervening space, showing the extent of the operation which had been performed years before and had included all of the tumors found at that time.

The conclusions that I have reached, after carefully weighing all the evidence in my possession relative to the probability and frequency of relapses, are:—

1. That the more chronic the case, the less is there a likelihood to a return of the disease.
2. That young or middle-aged persons, who have only partially developed the hemorrhoidal tendency, are more liable to a return than others.
3. That relapses so seldom occur after any of the radical operations have been performed, and never at the original seat of the disease, that they may be considered wholly as an *ex parte* matter.
4. That hemorrhoids first develop on the weakest and least protected part of the hemorrhoidal vessels, varying in kind, shape, and locality, according to the causes and peculiarities belonging to each individual case, and when once eradicated do not reform, in consequence of the structural changes brought about by the operation as before explained.

Women suffering from a tripartite disease of the rectum, uterus, and bladder or urethra, or simply uterine displacement and internal hemorrhoids, are not benefited, according to Allingham, by an operation for the relief of the latter; not that the operation of itself proves a failure or that relapses follow, but a proctitis is set up, the parts remain sore, ulcerate and refuse to heal, and a feeling of discomfort and uneasiness is constantly experienced.

These statements, coming from good authority, are well worthy of notice; although it would hardly be possible to conceive of a bad case of hemorrhoids in connection with other diseases, in which the patient could not be benefited by eliminating the hemorrhoidal part of the complication, particularly where the hemorrhoids seemed paramount and were the greatest source of annoyance; otherwise, the other troubles complained of would first attract attention and treatment, making the hemorrhoids of only secondary importance.

In chronic cases of uterine displacement causing little inconvenience, the rectal vessels accommodate themselves to the change, and the circulation becomes so well restored that the displacement cannot be looked upon as a barrier sufficiently strong to contraindicate an operation for the relief of internal hemorrhoids in women afflicted by the two conjoined ailments. This neutral state of the malposed uterus in its relation to the rectum, may be known by the exhibition of periodical outbursts of the hemorrhoidal disease, followed by intervals of complete rest, the same as we see in the behavior of hemorrhoids generally.

The operation alluded to by Mr. Allingham, of course, means the ligature, and presupposes the forcible dilatation of the sphincters and the strangulation of all the tumors at the same time, while under the influence of general anaesthesia, a procedure which, by its very nature, must excite a high degree of rectal engorgement and inflammatory action; whereas the operation by carbolic-acid injection may be conveniently limited to one tumor or to all on one side of the bowel, according to the circumstances of the case, and in this way the treatment may be so varied and divided as to greatly modify and control the local disturbance.

Spirit drinkers are more likely to suffer a relapse than others, on account of the cirrhotic condition of the liver. Such persons are not good subjects for operation. Their flesh does not heal readily, and they are disposed to secondary hemorrhage.

RECTAL EXAMINATION.

THE first step to be taken in making an examination of the rectum, when disease of this organ is present or suspected, will be to obtain a history of the case as given by the patient, supplemented by questions which naturally suggest themselves. This will furnish an approximate idea of what may be expected, but the patient's interpretation of his disease will often be found quite erroneous and misleading.

Should there be an undue protrusion at stool, pursue the same course that is recommended for the examination of internal hem-

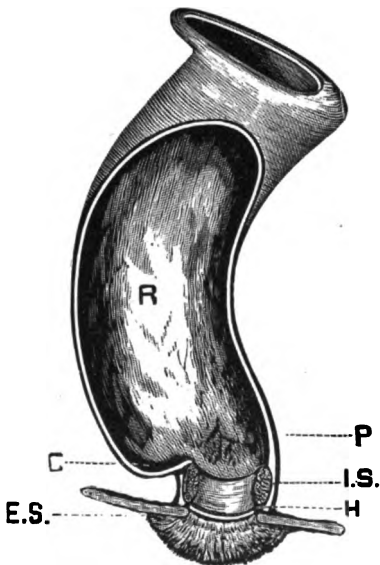


FIG. 19. Lateral section of rectum; normal curve. R., Rectal pouch. C., Cul-de-sac of the rectum. E. S., External sphincter. I. S., Internal sphincter. H., Hilton's white line. P., Position of prostate gland.

orrhoids. If protrusion be absent, direct the patient to lie on the side, with knees drawn up, separate the buttocks and inspect the anus, or, in other words, all that is presented to view externally at the terminal orifice of the rectum. Now draw down and evert with the thumbs the mucous membrane at the verge of the anus, asking the patient at the same time to extrude the parts as much as possible. This will enable you to see all there is for half an inch or more above the verge of the anus, or the entrance to the rectum.

Next, anoint the finger, pass it in gently and examine all the surface limited by the sphincters, a distance upwards of not over an inch, being careful lest you be deceived by the mobility of the tissues, when introducing the finger, and a small marginal growth, which may have formed, be carried up and appear as one of internal origin.

Anyone familiar with vaginal examinations can detect a rough or a broken mucous membrane, an indurated spot or prominence as soon as touched. Next, feel above the internal sphincter, keeping in mind the anatomy of the parts; turn the finger slowly, posteriorly, you can hook it behind the muscle. Here is situated the bottom or floor of the rectum, which forms a cul-de-sac. By asking the patient to strain down moderately the surface of the cul-de-sac will be thrown up against the end of the finger, and in this manner properly explored.

A digital examination reveals, in the normal state, a soft, velvety, unbroken mucous membrane with the parts pliable and yielding, showing no reflex excitability of the sphincters. The position and sensibility of the uterus should be noted in the female, and the size of the prostate gland in the male of advanced years.

The first three or three and a half inches of the rectum can be brought within reach of the finger. Explorations farther up will require a flexible rectal bougie, and a long tubular speculum. Rectal bougies are of little advantage in diagnosing rectal disease even in the hands of experts, and unless cautiously used are dangerous. Ninety-nine one-hundredths of all rectal ailments, it is safe to say, are found within the first two inches from the entrance, therefore, few general practitioners will ever be called upon to treat anything beyond the reach of the finger or the scope of a common speculum.

All hemorrhoids of any appreciable size or other tumorous growths in the same vicinity, will show at defecation, and can be treated while the parts are extruded.

All abrasions, ulcerations, indurations, etc., are discoverable by the sense of touch. Hence, it will be seen that the uses of the speculum are narrowed down to a few in number; namely, in that of bringing to view, for observation and treatment, diseased surfaces previously located, and small, soft hemorrhoids and other minor affections which may have escaped detection by a careful digital examination.



FIG. 20. Author's Rectal Speculum; has a three-facet reflecting inclined end.

Then, in view of the foregoing facts and in consideration of the anatomical formation of the parts (the rectum being a collapsible tube, highly sensitive at its lower extremity, and extremely difficult of accessibility, quite unlike the vaginal canal, which is closed at one end, more capacious and dilatable, and designed by nature to be approached from the exterior), a speculum should be so constructed as to not only be easy of introduction and withdrawal, but to exclude all the surface except a limited portion, and to permit the greatest possible amount of available light to fall on the exposed part shown *in situ*.

The greatest barrier to the successful use of a speculum, is the unruly external sphincter, and the excessive mobility of the mucous and muco-cutaneous surfaces. The upper margin of the external sphincter terminates beneath the junction of the skin with the mucous membrane, which place also marks the beginning of the internal sphincter and its junction with the external muscle by a more dense connective tissue, sometimes appearing as a white line at the muco-cutaneous junction, called the white line of Hilton.



WHITE VASELINE
ASEPTIC VASE-
LINE TUBE.

According to Dr. Andrews, Hilton has demonstrated that the locality where the two muscles join by the intervention of this fibrous ring forming the anal verge, the junction of the skin and mucous membrane, and the exit of the branches of the pudic nerve, is identical.

The internal sphincter is a collection of the circular fibers of the muscular coat of the bowel, from five-eighths to three-fourths of an inch in width, and constitutes in reality the terminus of the gut; for the external sphincter is a thin band of distinct and separate muscular fibers, elliptical in shape, between three and four inches from its anterior to its posterior extremity, and expands out around the margin of the anus like the flaring end of a trumpet, with its superficial layer in close relation to the skin which it draws down in radiating folds.

With this understanding of the anatomical relations, it will be seen that the external muscle contributes so slightly to the length of the canal, that it may be considered wholly on the outside, where it guards closely the entrance to the rectum, and is nowise

concerned in an examination with a speculum except as a feature of incumbrance.

To correct an erroneous idea that there is any considerable depression or space intervening between the muscles, ordinarily we mean, when we say between the sphincters and have reference to space alone, the distance bounded by the fibrous ring uniting the two muscles below and the upper portion of the internal muscle above. More simplified, we mean all the surface included between the upper margin of the internal sphincter and its junction with the external muscle at the anal verge.

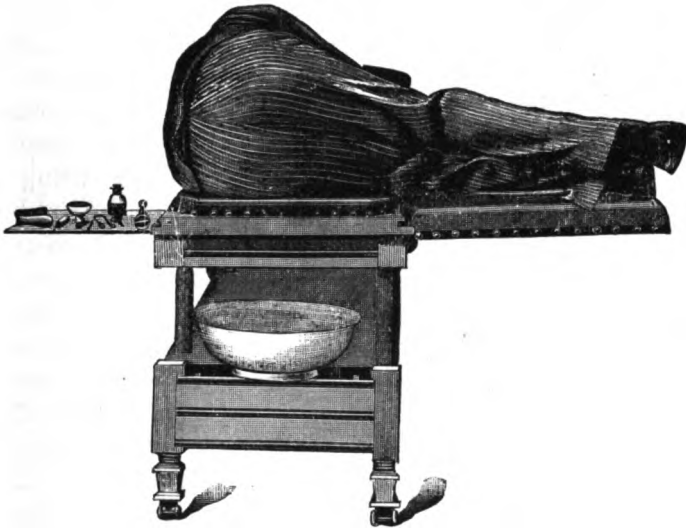


FIG. 22. Position for rectal examination.

Concerning the presence of a third sphincter, sphincter tertius, Kelsey says: "From a study of the literature of this question, and from the results of dissections and experiments which we have personally been able to make, we are led to the following conclusions: 1. What has been so often and so differently described as a third or superior sphincter and muscle is in reality nothing more than a band of the circular muscular fibers of the rectum. 2. This band is not constant in its situation or size, and may be found anywhere over an area of three inches in the upper part of the rectum. 3. The folds of mucous membrane (Houston's valves) which have been associated with these bands of muscular tissue stand in no necessary

relation with them, being also inconstant, and varying much in size and position in different persons. 4. There is nothing in the physiology of the act of defecation, as at present understood, or in the fact of a certain amount of continence of feces after extirpation of the anus, which necessitates the idea of the existence of a superior sphincter. 5. When a fold of mucous membrane is found which contains muscular tissue, and is firm enough to act as a barrier to the descent of the feces, the arrangement may fairly be considered an abnormality, and is very apt to produce the usual signs of stricture,"

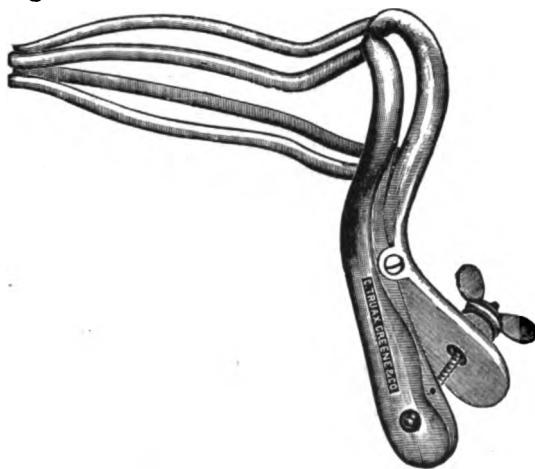


FIG. 23. Mathew's self-retaining rectal speculum.

The most suitable position for making an examination of the rectum with a speculum, is that of Simm's, his position being adaptable to the right as well as the left side. With the patient in Simm's position the speculum, when introduced, points or inclines downward, and admits of strong natural light to fall more nearly in parallel rays to the axis of the instrument. The light is always better on the lower side of the interior of a speculum when introduced, and consequently the patient is directed to lie, either for examination or treatment, on the affected side. All examinations with a speculum should be preceded by an enema of warm water to wash away the mucus and retained feces within and about the sphincters.

To prevent the loose tissue from rolling up and being pushed in with the speculum, at the time of its introduction, the patient may assist by holding the upper buttock away and by straining down moderately, while the physician introduces the instrument with one hand and retracts the lower buttock with the other. In operating or making applications through a speculum, the hand of the patient

can be further and desirably utilized in retaining the speculum in place, thereby giving the operator the freedom of both hands.

Introduce the speculum slowly, giving the muscles time to relax, bearing in mind that all movements about the rectum and anus must be extremely easy and gentle. For the first inch the speculum should be directed or pointed toward the navel of the patient, then toward the hollow of the sacrum. The proximal end of the slot of the speculum must be carried and kept entirely above the external sphincter during the entire course of the examination. It matters not what kind of a speculum is being used, the value of the instrument will greatly depend upon its power to hold this muscle out of the way.

When examining above the internal sphincter, especially posteriorly, where the bottom or floor of the rectum forms a cul-de-sac, direct the patient to strain down a little. This effort will throw the mucous membrane out into the speculum and at the same time will spread out and smooth its surface. In looking through a speculum the cul-de-sac sometimes appears as a vacancy behind the internal sphincter, and has been mistaken and treated as an ulcer cavity. It often contains a liberal supply of mucus. The finger will first have ascertained, however, whether or not there be any need to view the mucous membrane of the cul-de-sac.

In making examinations of the rectum and in diagnosing rectal disease, as with other parts and organs of the body, where disease is not well marked or is merely suspected, a knowledge of the normal conditions is necessary before determining the abnormal. A healthy mucous membrane above the sphincters when viewed through the slot of a speculum, often appears more or less flabby and redundant, and has been mistaken by the inexperienced eye for diseased tissue. The normal rectal mucous membrane varies



FIG. 24. Nott's vaginal speculum; self-retaining.

in color from an amber or straw to a light pink, and may be of a bluish or leaden color as it approaches the anus. Should you not be sure of your diagnosis, or should the examination not be altogether satisfactory, prescribe a placebo and ask the patient to call again for further examination, and make a study of the case.

The instructions thus far given are designed for the examination and treatment of rectal disease without the use of general anæsthesia. If the nature of the case calls for an anæsthetic and the use of a rectal speculum to aid in an operation, a large, expanding instrument will be needed. There are many kinds of rectal specula made



FIG. 25. Cotton forceps.

and recommended, but I believe that Nott's vaginal speculum, Fig. 24, answers the purpose in many cases as well as any of them. Rectal retractors are also very serviceable.

It is wholly unnecessary to submit a patient to the influence of general anæsthesia for the simple purpose of making a rectal examination, as is the common practice. The finger, together with the subjective symptoms, is sufficient to determine approximately the character of any rectal lesion and about what treatment will be required. In support of this statement I will here instance one case:—

Mrs. B., aged 64, was advised to see me for what she believed to be hemorrhoids. She complained of rather frequent, small passages, accompanied at times with bloody mucus, and a feeling that the evacuations were not complete. There was no pain, prolapse nor soreness. The trouble had existed about six months. External inspection showed no signs of disease. The finger was inserted into the rectum and the muscles found normal, as also was the cul-de-sac and the mucous membrane for a distance of an inch or more upward all around. By pushing the finger farther up, a hard nodular substance was found attached to the walls of the bowel which materially lessened its caliber. Reasoning by exclusion, I concluded the neoplasm must be malignant, but did not so inform the patient, because of possible shock. I named the disease stricture, and asked that she get the opinion of another before submitting to an operation. One of the most able surgeons of the city was consulted. He anæsthetized the patient, dilated the sphincters sufficiently to introduce a large speculum, and by the aid of an electric light viewed the lower part of the growth, occupying a period of about one-half hour. Did he learn any more through all this effort and display, and inconvenience to the patient, than I learned by a digital examination of less than one minute's duration?

FISTULA.

FISTULA in the ischio-rectal region so far exceeds that in any other locality that the unqualified use of the term immediately points to the lower extremity of the rectum as being the seat of the affection, and to those who have given this part of the physical organism special study, the word calls to mind a local condition of disease which is anything but agreeable or easy to manage.

In point of frequency fistula is next akin to hemorrhoids, but a much less desirable complaint to treat. Allingham states that the number of cases occurring in hospital practice is greater than hemorrhoids; that two-thirds of all the cases operated upon of the in-patients at St. Mark's Hospital, London, were fistula, the most frequent cause assigned being abscess. A failure of the abscess to heal, leaving a sinus or sinuses, is explained by the presence of loose areolar tissue and fat, extreme mobility of the parts subject to the periodical action of the sphincters, to the effects of respiration, coughing and sneezing, together with a tubercular or a strumous diathesis.

An abscess cavity leading to the formation of a permanent fistula usually, in time, contracts down to a narrow channel lined with accidental tissue, by which change the cavity as an abscess loses its identity, and thenceforth becomes known as a fistulous track. But few ischio-rectal abscesses occur that are not certain, when left to themselves, to be followed by some form of fistula, and few fistulæ tend to a spontaneous cure. In fact it may be said that the longer a fistula is left to itself, particularly if its drainage be imperfect, the more does it burrow, and the more difficult is it of cure; therefore it is deemed unwise to tell a person who has a fistula to have nothing done as long as he is not suffering, advice that is often given.

There are four recognized varieties of fistula, each variety taking its name from the form in which the disease is found to exist; as complete, external and internal incomplete, or blind, and complex. A complete fistula is one that has both an external and an internal

opening; an external blind fistula is one that has an external but no internal opening; an internal blind fistula is one that has an internal but no external opening; and a complex fistula is one that has side branches, pockets, or diverticula, and possibly more than one internal and external opening. The internal blind fistula is not common, neither is the complex, the simple complete, sub-muscular fistula being by far the most common variety.

Fistulæ are divided into two general classes: 1. Those of superficial origin. 2. Those of deep-seated origin.

The first class, to which the name anal is applied, includes all fistulæ originating from superficial abscesses, or such as are limited to the thickness of the external sphincter and have their internal orifices in the slight depression existing between the two sphincters, with their external openings in the skin ranging from a few lines

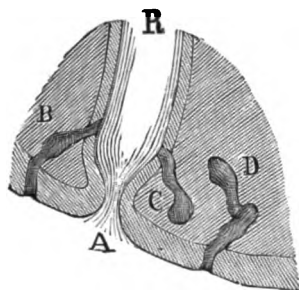


FIG. 26. Varieties of Fistula (Gosselin). A, anus; R, rectum; B, complete fistula; C, blind internal fistula; D, blind external fistula.

outside of the anus to a point more or less remote. Fistulæ of this class usually involve the entire thickness of the external sphincter, but sometimes pass under only a few fibers of the muscle, and may be altogether subtegumentary.

The second class, to which the name rectal is applied, includes all fistulæ originating from deep-seated abscesses, or such as pass under a part or all of both sphincters, and open into the bowel at various points above the junction of the two

muscles. The opening into the bowel may be through the internal sphincter, just above it or farther up the mucous membrane. The point of distinction between the two classes, it will be noticed, is based upon the implication of the sphincter muscles, and is surgically a point of much importance. Operations for fistulæ belonging to the first class, which is much the larger class, concern the integrity of the external sphincter only, whereas operations for fistulæ of the second class concern the integrity of both sphincters. None of the four varieties of fistula described are restricted to either class. A fistula that has burrowed behind the external sphincter or beneath the skin in different directions, is of the superficial complex variety.

DIAGNOSIS.

Annoyance by itching, a slight discharge and soreness at times in a circumscribed spot in the vicinity of the anus, with a previous history of abscess, might be considered a sure sign of fistula; but the patient may give the same symptoms with no knowledge of previous abscess or any other cause pointing to the formation of a fistula; yet, on inspection, a small opening with pouty lips, or a closed cicatrical depression not much larger than a pin head, will be found. This is the external ring, or opening, of a fistula, and if closed, may resist the introduction of a probe sufficiently to create the belief that no sinus exists.

After a probe has passed the external opening of a fistula of the common variety, it will take the course of the canal and almost of its own accord glide directly into the bowel; but if the canal be tortuous and a contraction of the sphincter has been excited by the slight amount of manipulation sometimes required to effect an entrance into the canal, the complete introduction of the probe may be extremely difficult, and often unsuccessful. If by gentle persuasion the probe cannot be made to find its way into

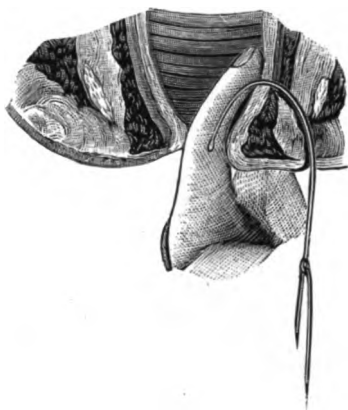


FIG. 27. Fistula traversed by probe. (Esmarch.)

the bowel, the finger should be inserted into the rectum and, with the probe in the canal as far as it will go, the internal opening sought for and located by the sense of touch. Occasionally the upper extremity of the canal terminates underneath the lower edge of the internal sphincter, forming a blind pouch, which may catch the end of the probe and be misleading. By sweeping the end of the probe slightly downward while the finger in the rectum presses the wall of the gut intervening between it and the probe, the internal aperture may be found situated in its usual place, just between the two sphincters. The reason given for the frequent situation of the internal opening at the place named, is that the tissue uniting the two muscles offers the least resistance to the burrowing and exit of pus.

Some writers say that it makes little difference whether or not the internal opening of a fistula is found prior to the operation that is designed for the eradication of the complaint, which statement will be conceded if all cases are to be handled alike; but since the discovery of cocaine and its advantages have become known in doing minor surgery, the location of the internal orifice or the upper extremity of a fistulous track, is of paramount importance, not only in determining the gravity of the case, but in determining whether or not a successful operation can be performed without the use of general anæsthesia and the dilatation of the sphincters.

Few fistulæ that have existed more than three months undis-

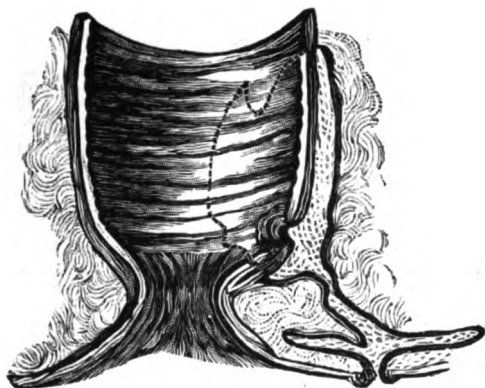


FIG. 28. Section of "horseshoe," or complex fistula with diverticula. (Andrews.)

turbed, are without an internal opening. Some physicians assert that all fistulæ progress, or extend by ulceration and in a short time become complete; but this is a mistake, for there are occasional cases of the deep external blind type that are nonprogressive, and have existed for years without an internal opening. When such fistulæ

are traversed by a probe they are usually found to take a direction away from the rectum rather than toward it.

Dr. Mathews records a case of fistula in which the disease occupied the sacro-lumbar region and had two external openings, one located over the sacrum and the other over the last lumbar vertebra. There were two rather superficial intersecting tracks, which did not reach within several inches of the rectum and had no connection with it.

Fistulæ behave differently in different subjects, and differently in the same subject at different times. A fistula may remain passive for an indefinite length of time and its external opening close perfectly, effacing all external appearances of the disease, then suddenly show itself anew by an attack of secondary suppuration, due to the

irritating effects of the undrained septic material within the sac. Such attacks, of course, are attended by swelling and pain until a new opening forms or one is made by the surgeon. In some instances the original fistulous track is reëstablished, in other instances the pus coming in contact with the dense structure of the skin, which it cannot penetrate without exciting a certain amount of inflammation, is deflected from its course and may burrow to some remote part, as down the buttock or along the perineum to the base of the scrotum. These subcutaneous canals seem as pipe stems under the pressure of the finger. The site of a fistula and also the extent to which the disease has burrowed may often be determined by feeling around the anus with the forefinger for indurated tissue, which always exists to a greater or less extent in the affected part.

There is a certain kind of internal blind fistula that results from ulceration, but it is not common, and does not seem inclined to burrow. It is thought that it starts at the bottom of one of the little pouches, or pockets, sometimes found in the mucous membrane of the rectum within the last inch, the mouths of which open upward and favor the entanglement of seeds, bits of bone, etc., contained in the feces. A fistula of this species is usually funnel-shaped, its orifice being large, often sufficiently large to admit the end of the finger, with edges sometimes indurated, at other times undermined. It may occupy any part of the last inch of the rectum, but is generally situated at the junction of the two sphincters, its shape favoring the reception of liquid feces, which, on entering it, produce a burning pain that may last all day after the bowels have acted. One of the symptoms of a fistula of the ulcerative type, which is also common to other kinds of internal blind fistulæ, is the periodical appearance of a swelling at or near the anus, caused by the confinement in the sinus of fecal matter and pus. A subsidence of the swelling is noticed by an increased discharge, with the feces of mucus and pus sometimes commingled with blood.

We have another species of internal blind fistula that is principally submucous, that manifests no local symptoms, and may exist a long time without detection, the small quantity of pus secreted being carried away with the fecal discharge, and escapes the notice of the patient. It is only by the reflex symptoms, such as irritability of the bladder, the prostate, pain in the loins and down the

thighs, which cannot be attributed to any other cause, that this form of fistula is suspected. After washing out the rectum with warm water, a suitable speculum should be inserted and the mucous lining carefully inspected. Whenever a suspicious looking spot appears within the field of vision, a probe should be placed upon it, and if it be the opening of a fistula the probe will enter it and take the direction of the sinus. Some advise that the patient be not instructed to take an enema before the examination lest the pus be washed away and a probable guide to the opening be lost; but I prefer a clean mucous surface for inspection, one that is not obscured by rectal secretion, and if a sinus exists, pus will be seen to bubble up through its opening by pressing the mucous membrane and tracing its folds, in the vicinity of the sinus, with either a long probe or a blunt hook. The opening usually occupies a position just above the sphincter, and can be felt with the finger.

THE ABSCESS.

It is believed that all fistulæ, except such as result from ulceration within the bowel, are preceded by some form of abscess, and that those having no history of abscess originate from the so-called "cold abscess," *abcès froid*, which occurs in the phlegmatic temperament. We know that in people of a sluggish temperament, or those of loose fiber and having a low state of vitality, tissue may degenerate in certain localities, pus form and burrow its way out without exciting any observable inflammatory action or attracting for a time much if any local attention.

Since discoverable abscess is the most prolific source of fistula, an early diagnosis of and a proper attention to the abscess will usually be successful in forestalling its almost certain fistulous sequence. Whenever there is reason to believe that an abscess is forming in the ischio-rectal region, whether it be superficial or deep-seated, phlegmous or phlegmatic, its formation should be hastened by the application of hot poultices, and the pus evacuated as soon as fluctuation is detected. It will be useless to attempt to abort the abscess by painting the surface with iodine, etc., for it will only be a waste of time. An abscess starting deeply in the fossa, if left to itself, would be apt to break internally and leave an internal blind fistula, one of the most serious forms of the disease, but the

physician recognizing this fact will open the abscess externally, and thereby prevent it from bursting inside the bowel.

Dr. Hoyt, of New York, strongly recommends dilatation of the sphincters, immediately after opening the abscess, as an unfailing remedy in preventing fistula.

In lancing a superficial abscess, the skin along the route of the proposed incision should first be anæsthetized by intradermic injections of cocaine, unless by inflammatory action and tension from the pointing of the abscess, it has already lost most of its sensibility, in which event it may be sufficiently anæsthetized by

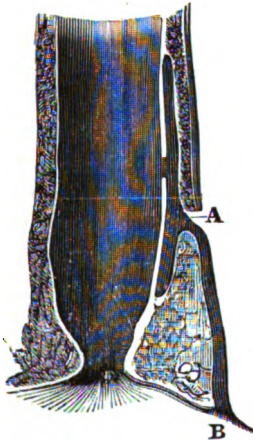


FIG. 29.

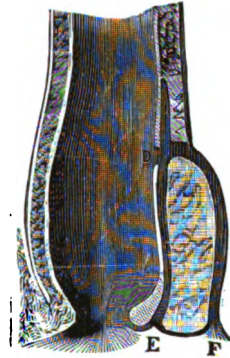


FIG. 30.

Fistulæ with Double Tracks. (Mollière.)

Fig. 29. AB, deep submuscular track resulting from a deep-seated abscess. AI, submucous track running up and down the bowel.

Fig. 30. DE, subtegumentary and submucous fistula with internal and external opening. DF, deep submuscular track, having same internal, but separate external opening.

drawing a line over the surface with a probe dipped in carbolic acid. The incision should then be made parallel with the length of the abscess, if the abscess has length, otherwise parallel with the buttocks, or in a line with the sides of the rectum, and all the loose skin and subcutaneous tissue divided. After the pus has been evacuated, the cavity should be syringed out with a bichloride of mercury solution (1 to 5,000), and packed with iodoform gauze. On the following day the gauze should be removed and the cavity

cleansed with peroxide of hydrogen. The same rules obtain in opening a deep-seated abscess, except that deeper injections of cocaine will be required, and a greater thickness of tissue must necessarily be penetrated in reaching the cavity. General anæsthesia is preferred for opening deep-seated abscesses located near the sphincters, for the reason that the chances of a resulting fistula are reduced to a minimum by a thorough dilatation of these muscles. In laying open the deep-seated variety, a straight bistoury should be plunged into the cavity, beginning at a point nearest the anus, and a cut made sufficiently large to easily admit of the introduction of the finger, and either the finger or the handle of a knife used to break up all existing loculi.

The after-treatment of the abscess consists in cleansing the cavity once a day with peroxide of hydrogen (15-volume), and inserting a tent of bichloride of mercury or iodoform gauze. If a more stimulating treatment be indicated by vascular inactivity, a mercuric solution should be substituted for the peroxide of hydrogen. If, on the other hand, the inflammatory condition has not altogether subsided, and the tissues remain more or less irritable, I prefer, for its antiphlogistic effect, a two and a half or a five per cent solution of carbolic acid.

Over-packing or the continued stuffing of the cavity of a deep-seated ischio-rectal abscess, and the persistent gouging into it with the finger for the purpose of destroying the lining membrane or of exciting granulations, cannot be too strongly condemned. A case showing the results of such irrational practice came into my hands a few months ago from Portland, Oregon. The patient had been in charge of one of the most prominent surgeons of that city for five months, and was discharged as cured. The abscess had been allowed to burst inside the bowel. Two large, divergent, cone-shaped cavities, densely lined with cicatricial tissue, were found posteriorly, with their bases about one-half an inch above the anus and not entirely separated. A fistula ran from one of the cavities into the cul-de-sac above, and through efforts at repairs a semi-lunar stricture had formed over it. The fistula was laid open, which relieved the stricture, and the cavities thoroughly curetted. No packing was used after the first dressing. Contrary to expectation, the cavities filled by granulation to the surface, with no other treatment than mild washes.

TREATMENT OF FISTULA.

BUT little advancement has been made in the treatment of fistula since chief surgeon Felix devised the "Royal Bistoury" for the cure of Louis XIV. Although many attempts have been made to supplant the knife in the treatment of this affection, none have succeeded, and the knife is still for manifest reasons the instrument preferred by all surgeons of experience. Those who start out in the field of rectal surgery impressed with the idea that fistula can be successfully treated without doing more or less cutting, will certainly be compelled to radically change their views before handling many cases, for the character of the disease is such that the inclination to lay open the sinus or sinuses at once to effect a speedy cure, becomes stronger as the experience in the treatment of the affection cumulates.

All operations of any consequence for the relief of fistula should be preceded by a thorough evacuation of the bowels on the day previous to the operation, and this supplemented by the action of a purgative pill or saline draught given the night before. If the operation promises to be one of more than ordinary magnitude, it may be well to free the large intestine of its secretion by the flushing process one or two hours before the appointed time for doing the operation.

All fistulæ classified as anal, or such as involve only the thickness of the external sphincter and have their internal orifices between the two sphincters, can be successfully treated by the aid of local anæsthesia, and without the dilatation of the sphincters. Most persons are averse to taking an anæsthetic, and will often decline or put off an operation for no other reason. Fortunately for these a very large majority of fistulæ are of the superficial class, and may be quite conveniently handled by the judicious use of cocaine. To the wishes of patients who are good subjects for chloroform and insist upon taking it for even slight operations, I offer no objection, even though their cases be such as are well suited to the employment of local anæsthesia.

If the case be suitable for local anæsthesia, and it has been decided to operate in that way, first cleanse the fistulous canal with peroxide of hydrogen or warm carbolized water, and inject into it through a flexible silver canula a ten or fifteen per cent solution of cocaine. After waiting a short time for the cocaine to take effect, introduce into the canal a small grooved director in the manner of the probe as shown in Fig. 27; then inject a solution of cocaine of the same strength as before into the tissues over the director in a sufficient number of places to make anæsthesia complete, and release the instrument by dividing all the structures resting upon it. Now run a probe along the bottom of the track in search of lateral sinuses, and if any be found, lay them open, draw the knife across existing bridges, scrape the bottom of the track, remove flaps, pare off the edges of the wound and pack it with bichloride of mercury gauze.

The prick of the hypodermic needle used for the injection of the cocaine, is the most painful part of the procedure, unless some difficulty be experienced in passing the director. If the director cannot be readily passed and a probe can, let the probe be used as a guide in laying open the sinus. There is no necessity of waiting any length of time for the anæsthetic effect of cocaine after it has been injected into the tissue, for its effect is immediate, and if much delay be indulged in, the tissue thickens by swelling, and becomes more or less distorted. To determine whether or not the cocaine has reached all of the tissue to be divided or removed, pinch the tissue with forceps or puncture it with the hypodermic needle.

I have removed from the buttock near the anus, by the use of cocaine, a triangular piece of flesh measuring quite one inch and a



FIG. 33. Flexible curette.

half in each direction, and about half an inch in thickness, which had been undermined by the burrowing of pus, and the patient knew little more about the cutting than to hear the click of the scissors. After the piece had been detached it was observed that enough tissue had not been removed in places to denude all of the affected surface. Some of these places were not entirely destitute of

sensibility as far as it seemed necessary to remove the tissue, and a few drops of the cocaine solution were injected directly into the cut and bleeding surface at each place, and the tissue pared off to the extent required without giving rise to the slightest feeling of pain.

The operation for fistulæ of the deep-seated variety, or those classified as rectal, consists:—

1. In the administration of an anæsthetic, the dilatation of the sphincters and the washing out of the rectum with one or two per cent solution of lysol.

2. In the straightening out of the fistulous track by the introduction of a grooved director, the end of which is carried entirely within the bowel, whether the fistula be complete or not, and then pulled outward with the finger, making tense the tissues covering the director while they are divided with either a straight or a curved bistoury.

3. In the completion of the operation by the searching for and the laying open of lateral sinuses; the location and excision of any callous or cicatricial tissue that may be found at the bottom or along the sides of the track; the curretting of the bottom; the removal of flaps and the paring off of irregular or overhanging edges of skin, and lastly in the packing of the wound with bichloride of mercury gauze.

The one or two per cent solution of lysol, used to wash out the rectum after the sphincters have been distended, is allowed to flow from a fountain syringe containing one gallon of the hot solution previously prepared for the purpose of irrigating the wound during the course of the operation.

A much smaller director than the one in common use will be needed in laying open the small branch fistulæ, or sinuses, running off from the main channel. The callous or cicatricial tissue some-



FIG. 34. Small probe-pointed director.

times found at the bottom and sides of the track, and which may be easily detected by running the end of the finger along the route of the incision, should be raised with forceps and excised with a pair of curved scissors. It may be necessary to excise the bottom of the track in its entire length to dispose of all of the indurated tissue

found in cases of long standing. Some prefer to scrape the bottom of the track and divide the indurated tissue by making the "back-cut" of Professor Salmon. Ordinarily the track does not require anything more than a thorough curetting.

Operations for fistula are not attended by much bleeding unless considerable mucous membrane has been interfered with and the incision has been carried high in the bowel, implicating the superior hemorrhoidal vessels. All spurting or pulsating vessels are to be ligatured or twisted, while compression by packing is to be relied upon for the control of venous bleeding and capillary oozing.

The deep internal blind fistula, which is one of the worst forms

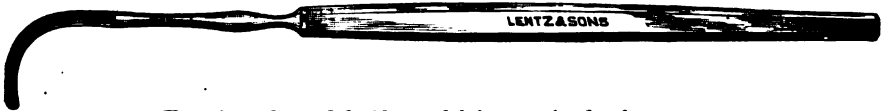


FIG. 35. Curved knife, useful in certain fistulous cases.

of the disease, for it has no external drainage and is being constantly irritated by the lodgment of detritus, should be made complete by cutting through the skin at a point directly in line with the main channel, if this point can be determined by the external appearance of the affected part, otherwise it may be approximately located by tracing the course of the sinus from the interior of the bowel with a



FIG. 36. Silver probe attached to handle.

probe bent in the form of a hook. Failing in the effort to properly locate the inferior extremity of the sinus in this manner, the operation may be performed by inserting a probe-pointed curved bistoury into the upper extremity, and the instrument made to cut its way out. The external blind fistula is to be made complete, as mentioned when describing the operation by pushing the end of the director through the tissue intervening between the upper end of the sinus and the interior of the bowel.

In cases of the deep-seated external blind fistula, where the sinus is directed away from the bowel rather than toward it, the proper course is not to divide the sphincters at all, but to enlarge the external opening and endeavor to excite granulation in the

sinus by the use of the fistulotome or by the injection of carbolic acid, methods of treatment to be described in their respective places.

The direction of the upper part of a complete fistula is often so changed by the dilatation of the sphincters, that the end of a director cannot be made to find its way into the bowel through the internal aperture, but will be felt encroaching upon the mucous membrane at a point not distant from the aperture. This should not confuse the operator, who, with one finger inserted in the rectum, will attempt to guide the instrument to its proper place;



FIG. 87. Kelsey's fistula director.

but if not successful after reasonable manipulation, sufficient force should be applied to the instrument to push it through the mucous membrane, and the short end of the track thus cut off be afterwards sought and properly exposed.

A rule that should always be carefully observed when operating for fistulæ of the complex variety, of which the horseshoe form is recognized as being the most serious, is that the external sphincter must not be divided more than once, lest it fail to regain its contractile power and incontinence of feces follow. It is better to operate the second or third time, should the case require more than one division of the sphincter, rather than endanger the patient's future power of controlling the movements of the bowel. The idea that is intended to be conveyed by using the term "horseshoe" in designating a certain form of fistula, is that the disease has extended, usually dorsally, in such a manner as to partly or nearly encircle the extremity of the rectum, by which the sphincter or sphincters are likely to be considerably undermined and their attachments more or less destroyed. There may not be more than one external opening, but generally two internal openings, the internal openings sometimes being on the opposite sides of the bowel; or this arrangement may be reversed and only one internal opening be found, but two external openings, the former being situated posteriorly and the latter opposite to each other, one in the skin on either side of the anus. A "horseshoe" fistula is nothing more than an aggravated form of complex fistula, and should be so understood;

but some use the terms interchangeably and apply them alike to any fistula of the complex variety, whether the sinuses run parallel with the fibers of the sphincters or transversely to them; or whether the disease is situated anteriorly, posteriorly or laterally. The objective point when operating on such cases, of course, is in looking toward the preservation of the sphincters.

As stated by Cooper and Edwards, of London, and quoted by Lewis H. Adler, Jr., of Philadelphia, "If a complex fistula can be laid open in such a way as to entail only one division of the sphincter, and that at right angles to its fibers, there will be a minimum amount of risk of subsequent incontinence." Dr. Adler then attempts to show by the use of diagrams how this can be done; but as he does not make himself clearly understood, and seems to deal only with fistulæ made complex by burrowings external to the sphincter, or such as have two or more external openings communicating with only one internal opening or submuscular track, I fail to see that he has succeeded in the effort. Figs. 38 and 39 are taken from his drawings and are designed to illustrate, as I under-

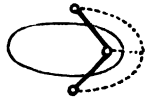


FIG. 38. Diagram showing wrong method of operating in "horseshoe" fistula.

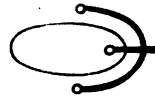


FIG. 39. Diagram showing right method of operating in "horseshoe" fistula.

stand, a right and a wrong way to operate for a fistula having one internal opening, with the sinus running beneath the sphincter in its outward course to the under surface of the skin, where subcutaneous branches are sent off in opposite directions to their points of exit, forming a T-shaped track, which is represented by the dotted lines in Fig. 38. Dr. Adler says if the operator were to follow the usual plan he would first cut through the tissues connecting the two external openings with the internal opening, as represented by the dark lines in Fig. 38, thus dividing the sphincter in two places obliquely through its fibers. I do not understand that the usual plan would be to make the incisions in the way he speaks of unless there were corresponding sinuses to direct such incisions, which would represent a form of fistula not mentioned by

him nor shown by his diagrams. If he means that the sphincter or sphincters have been undermined dorsally in such a manner as to properly represent a "horseshoe," a division of the muscle or muscles through the place corresponding to the toe of the shoe, as represented by the straight line in Fig. 39, would certainly be the most rational way to operate.

Dr. Adler takes some pains to illustrate how a fistula having several external openings can be treated by one division of the sphincter; but as his diagrams do not show, as before stated, that the external openings communicate with more than one sinus which pass under the sphincter, and as he does not at any time speak of a fistula having more than one such sinus, it does not appear that there would be the least danger of anyone falling into

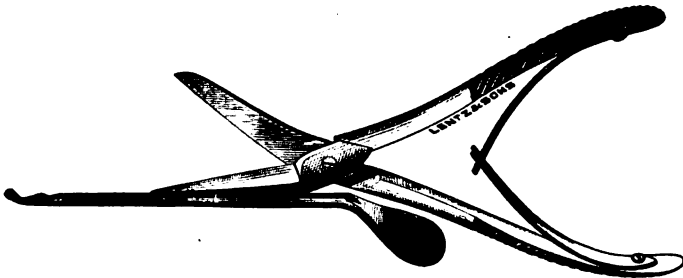


FIG. 40. Allingham's spring scissors and director; useful for laying open tracks running up the bowel.

the error of dividing the sphincter muscle twice when operating on the class of cases he describes. External openings representing the formation of several superficial sinuses external to the sphincters are of but trifling importance. It is only when these openings lead to more than one submuscular track that they are significant. The gravity of a case of fistula depends wholly upon the extent to which the sphincter or sphincters are implicated, and not upon the number of cutaneous perforations or subtegumentary canals.

In dealing with fistulæ of a complex character, the surgeon is expected to be resourceful, and must be guided by the peculiarities of each case, no two cases being exactly alike. In cases with two distinct submuscular tracks, the best plan of treatment is to lay open one of the tracks and scarify the other, which, together with the

enlargement of the external orifice of the latter for the purpose of drainage, and the rest afforded the parts by the previous dilatation of the sphincters, may be sufficient to effect a cure without having to cut through the sphincter muscle more than once.

Dr. Mathews lays particular stress upon the surgical importance of the external sphincter, and holds, contrary to past teaching, that this muscle and not the internal sphincter, is the one that should be spared during surgical operations around the rectum, and that it should never be cut through twice at one sitting. The relative importance attached to the two muscles by Dr. Mathews is based upon the fact that incontinence depends wholly upon a loss of function of the external sphincter, this muscle having both voluntary and involuntary muscular fibers; whereas the internal sphincter, not being provided with voluntary muscular fibers, is not under the influence of the will and cannot, therefore, exercise any control

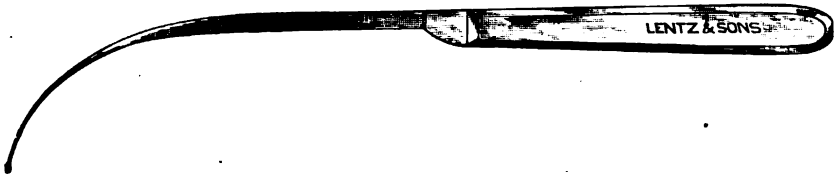


FIG. 41. Kelsey's fistula knife.

over the evacuations of the fecal mass. Granting that the power of retention is vested in the office of the external sphincter, which, by the way, leaves the office of the internal sphincter unexplained, there is little reason to fear, it seems, that the external sphincter will lose much of its power by a division of its fibers alone, for it is so well supported by its close attachment to the internal sphincter that the cut edges of the muscle, even should the wound be delayed in healing, cannot retract to any considerable extent; but if both muscles be divided together, the support is lost, and danger begins.

Kelsey says: "Incontinence depends more upon division of the internal than of the external sphincter, and is more apt to follow a double division of the fibers than a single one. For this reason the surgeon should always endeavor to leave a few fibers at least of the internal muscle in any operation, and the incision should always be directly and not obliquely across the fibers of the muscle. It is also well to remember that incontinence is always more apt to result

from division of the muscles in the female than in the male. A permanent incontinence of fæces is *always* considered by the patient a very poor exchange for a fistula which was causing comparatively little suffering or annoyance."

Inasmuch as the sphincter muscles do sometimes fail to regain their power after division by the knife, leaving the subject in a pitiable state of incontinence of feces, which has resulted in several well-authenticated cases in suicide, and inasmuch as we have no means of knowing previously when the operation may or may not be followed by such dire results, I submit the question to all thinking, conscientious and painstaking physicians: Should we not be extremely cautious in conducting the treatment of a disease upon which a life may be made more or less miserable if not entirely blighted? I am fully impressed with the belief that either a partial or a complete loss of function of the sphincter muscles is due more to the ignorance of the operator and bad management in the after treatment, than to the mere fact that the muscles themselves have been divided.

In my early experience with rectal disease, Daniel Mc——, aged thirty-five, who a few months before had been operated upon by a reputable surgeon for the relief of fistula, sought my acquaintance, exhibited his condition and related his experiences. The fistula had originated from an ordinary abscess, was not of long standing and caused little inconvenience. The operation consisted in a division of the external, together with the greater portion of the internal sphincter. He was put on a liquid diet, kept in a recumbent posture, and his bowels confined, he said, for fifteen days.

The incision had cicatrized at both extremities, but was kept alive in the middle by the discharge of a lateral sinus, which had been overlooked by the surgeon. The external sphincter had lost most of its power and the internal muscle was greatly weakened, conditions which necessitated the wearing of a clout whenever the bowels became a trifle loose, and he lived in constant fear of soiling himself by allowing the escapement of the least quantity of flatus. The time lost, the money expended, and the unfortunate condition in which he found himself eight months after the operation, so thoroughly embittered him against the cutting process, that he spared no pains and lost no opportunity to influence everyone with

whom he became acquainted, against all such heroic and uncertain measures.

Subsequently two other cases came under my observation in which muscular section had been practiced for the cure of fistula, after which the incision refused to heal properly, leaving a small lateral sinus discharging into the gaping cicatrix together with a partial loss of function of the external sphincter. Both of these conditions occurred in gentlemen of temperate habits, who were in the prime of life and in whom could be traced no constitutional taint.

One of the gentlemen referred to was suffering from frequent attacks of gastro-intestinal irritation, which he assured me had never troubled him before the operation. Food passed through the

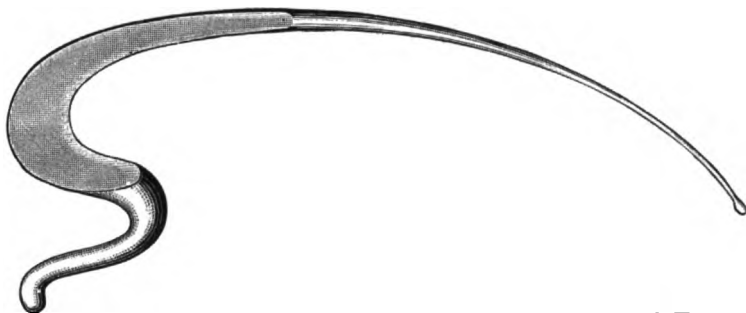


FIG. 42.—“Royal bistoury,” with which Chief Surgeon Felix cured Henry XIV. (Esmarch.)

bowels partially digested, and vomiting sometimes occurred while walking on the street. He was advised to regain lost health before having anything done to the remaining small sinus. After the lapse of some months, I incidentally made inquiry of one of his acquaintances concerning his welfare, and was pained to learn that he had quite recently died from the effects of the gastro-intestinal irritation, all of which dated back to the time of the operation that had been performed nearly one year and a half before for the relief of fistula. I now believe that the digestive trouble was solely a reflex from the resulting proctitis and the irritation in and about the sphincters.

The cases here cited clearly illustrate two things. One is that if a sinus be left, even though it be small, a cure will not be effected;

and the other is that if a cure is not effected the patient may be left in a much worse condition than if he had never come in contact with a surgeon's knife. When the wound made in laying open a fistulous track secretes more pus than seems warranted by the nature of the incision, and shows no disposition to heal at some particular part of the bottom, the cause may be looked for either in the pocketing of tissue from the confinement of pus, in the presence of callous tissue or in the discharge of a lateral sinus. The first two conditions may not be difficult to relieve, but the sinus usually persists until disposed of by surgical interference.

In reviewing the treatment of fistula by the knife, we find that the chief points concerned in an operation, named in the order of their importance, pertain:—

1. To the preservation of the sphincter or sphincters.
2. To the location and disposition of lateral sinuses.
3. To the excision of indurated or cicatricial tissue.
4. To the removal of any large projections or flaps of tissue about the wound together with the careful trimming of its edges.

By close attention to the points here enumerated, and unrelaxed vigilance in conducting the treatment after the operation, the results of the treatment of fistula by this method under anything like reasonably fair conditions should be uniformly satisfactory.

When fistula is found in conjunction with other rectal disease, either as the principal disease or as a complication, the other disease must be duly considered before attempting to cure the former. For instance, if a fistula is complicated by rectal stricture, or *vice versa*, to cut the fistula without giving proper attention to the stricture would be of little avail. Attention should first be turned to the stricture, as there is a prospect that the fistula may undergo a spontaneous closure by a cure of the former. It is said that many awkward mistakes have happened to good surgeons by failing to detect this complication. Such a blunder is hardly excusable, for it seems almost impossible that anyone with an educated finger could put it into the rectum without discovering the presence of a stricture.

THE AFTER TREATMENT.

It is emphatically stated by some surgeons that as much knowledge is required to carry the wound inflicted by an operation for a

rectal fistula to a perfect result as is required to do the operation itself, and that as many failures to cure are due to the one cause as to the other. For this reason it is advised that the surgeon keep the patient under his own observation until a cure is effected.

There is some difference of opinion as to the proper time for removing from the wound its first dressing. To save the patient as much pain and annoyance as possible, some advise that the first dressing remain until suppuration has been established, which occurs the third or fourth day; while others, being more or less influenced by antiseptic principles, and believing that the blood oozed into the dressing and allowed to dry there acts as an irritant, favor the removal of the dressing on the second day. In consequence of the tumefaction and soreness resulting to the parts from the direct effects of the operation, the removal of the dressing on the second day is sometimes attended by a great deal of pain, often more than the patient is willing to suffer. Therefore, I permit myself to be governed in the removal of the primary dressing, by the kind of dressing that has been used together with the circumstances of the case as I find them. If the operation has been quite extensive and there is a disposition to bleeding, the wound should be packed with dry absorbent cotton or with both cotton and antiseptic gauze, which may be allowed to remain longer; but if the bleeding is no greater than ordinarily attends operations for fistula, antiseptic gauze alone is used, and the edges of the skin surrounding the wound well lubricated with vaseline or oil to prevent the dressing from sticking. The dressing can then, as a rule, be easily drawn out on the second day and the wound inspected. The anointing of the cut edges of the skin for the first few days, the only place where the dressing is likely to become dry and adhere, is an important feature in handling these wounds without causing much pain.

After the removal of the primary dressing the wound should be cleansed with pyrozone, hydrozone or peroxide of hydrogen, dusted with iodoform, and enough iodoform gauze gently placed between its cut surfaces to prevent their union while granulations are forming and filling in at the bottom. My plan has been to use bichloride of mercury gauze for the first dressing and subsequently iodoform gauze. As yet I have found nothing that gives better satisfaction for dusting wounds than iodoform.

It has not been long since surgeons used various antiseptic washes for cleansing wounds and ulcerations, but at the present time no one would think of using anything other than pyrozone, hydrozone or peroxide of hydrogen. Pyrozone, three per cent, is stable and non-irritating, but hydrozone or peroxide of hydrogen is preferable where much pus is secreted and stimulation is wanted. The most economical as well as convenient way of carrying either of these agents to a diseased surface is by means of a glass dropper. When a wound shows marked irritability, irrigations with hot carbolized water are to be recommended.

The two places to be kept under strict surveillance during the entire healing process are the ends of the wound. There is a strong tendency for the ends, particularly the cutaneous end, to heal in such a manner as to form a little hood, or pocket, by which the secretions are retained, granulation at the bottom prevented, and the formation of a fresh sinus favored. When such pockets are discovered, they should be speedily met by incision. The skin being better nourished heals much more readily than the subjacent and underlying tissues, and to forestall the possible formation of one of these pockets during the healing of deep wounds, it is advised that the skin be freely cut away from the outer end of the wound at the time of the operation.

Of all portions of the body, wounds about the rectum are found to be the most difficult to keep from suppurating, and therefore require the most careful watching and treatment to prevent the secretion of pus, and its confinement. Should the discharge from the wound become suddenly excessive, it is an indication that something is wrong, and a diligent search should be made for the cause. A sudden increase in the discharge is most often an evidence that a fresh sinus has formed at some point along the bottom, but it may be due to the sloughing of a bit of unremoved indurated tissue, or to the retention of something in the wound that acts as an irritant, as a portion of the dressing, etc.

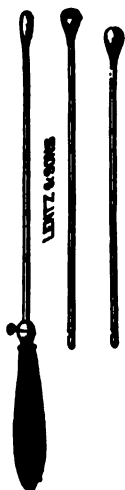
The object in making a close inspection of the wound daily is to see that granulation is going on properly at the bottom, and that the sides do not lie in apposition. One not experienced in the after-treatment of fistula, may be easily led into the belief that he has the wound properly exposed by opening the top and looking into it; but if he will take a probe and examine more closely, he may find that the granulations have united only from the sides. Should such granulations be found, they must be broken up at once. On the other hand, much harm may be done and the healing delayed by overpacking and undue use of the probe.

It is not necessary to keep the patient in bed after an operation

for a fistula for any great length of time. In average cases a period of one or two weeks will be sufficient. The bowels should be confined for the first four or five days after the operation, or longer if thought advantageous, during which time a liquid diet is to be maintained. If opiates have been indulged in pretty freely for the prevention of intestinal peristalsis, the bowels should be made soluble, when it is desired to obtain the first movement, by the administration of a gentle laxative, as compound licorice powder, elixir citrate of magnesia, etc., and the action of the laxative facilitated by an enema of hot borax water. Subsequently the rectum should be evacuated daily, though not necessarily as often, by the injection of a plenteous supply of hot borax water, and this plan continued until the healing of the wound is far advanced. The idea is to procure almost involuntary movements, and excite the action of the sphincters as little as possible, rest being essential to the healing of all wounds, abrasions, and ulcerations. The object of using the douche as hot as consistent with the feeling of the patient, is to obtain the benefits that are derived from hot-water irrigations, by which, it is well known, the capillary circulation is stimulated, irritability subdued, and the reparative process favored.

TREATMENT OF INCONTINENCE OF FECES.

When incontinence of feces has resulted from an operation for the cure of fistula, the case is not to be looked upon as altogether hopeless. There are several ways by which the patient may be partially if not entirely relieved of the deformity. The most simple, though painful treatment, is to apply to the cicatrix of the operation wound, the old-fashioned cautery iron heated to the proper degree, or the point of Paquelin's thermo-cautery, with a view of contracting the anal orifice. This plan is recommended in cases in which the ends of the muscle have not retracted to any considerable extent, but in which the muscle is weak and lacks tone. In cases of this kind, the benefits of the cautery iron may be carried further than the cicatrix, by drawing lines over the muscle in four or five places around the anus. The lines should begin well within the



Cautery irons. anus, should radiate from it, and terminate on the

skin an inch outside, fully encompassing the width of the muscle. The tissue should be thoroughly cauterized down to the muscle, particularly at the beginning of the lines.

In cases with a wide or gaping cicatrix, and the muscle drawn away on the opposite side, the treatment advocated by Kelsey is to be preferred. He advises the complete excision of the cicatrix, exposing freely the divided ends of the muscle and bringing them together by buried sutures, exactly the same as in cases of lacerated perineum.

Allingham, Jr., recommends for the relief of incontinence, the freeing of the ends of the muscle by a deep incision through the old cicatrix, and allowing the wound to heal once more by granulation from the bottom.

As a means of preventing incontinence in dealing with fistula situated anteriorly in the female subject, Cooper & Edwards recommend, after laying open the sinus as in the ordinary operation, that



FIG. 44.—Volkmann's spoon.

the bottom of the track be excised with a pair of suitably curved scissors or thoroughly scraped with a Volkmann's spoon, and then deep sutures be inserted as for ruptured perineum, in the hope of getting union by first intention. This method is identical with that recommended several years ago by Dr. Frederick Lange, who claims priority in suggesting the advisability of treating fistula by the use of buried sutures.

A report of the cases treated by Dr. Lange by the use of buried sutures, is here appended. "The first operation," he says, "was performed two years ago upon a lady who had a deep-seated fistula, the internal opening of which was situated two or three inches above the sphincter. She was perfectly cured in two weeks. Since then I have had about a dozen cases in which the extent of the lesion and the gravity of the operation varied, the results being as follows: In four cases the primary union occurred without suppuration. In three, a similar result was obtained with but slight suppuration. In four, the wound healed by granulation in a shorter time than it would have done after one of the old operations. In one

instance I did not sew up the wound at all on account of inflammatory infiltration of the edges. In another, that of a gentleman whom I had treated during the acute stage of a very extensive gangrenous peri-proctitis, there was so much cicatricial tissue that I did not venture to excise at all for fear of removing so much of the muscle that incontinence might result. This patient has still an internal fistula which causes no inconvenience except a slight discharge.

"My technique has been essentially the same as that described by me before—viz., excision of the entire fistulous track, together

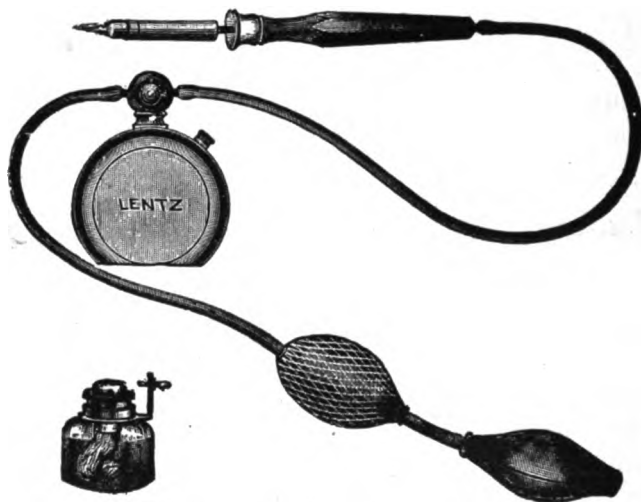


FIG. 45.—Paquelin's thermo-cautery.

with all the lateral sinuses, such as not infrequently exist in the cellulo-adipose tissue above the sphincters, and union of the deep tissues by means of buried sutures of iodoform catgut, as well as accurate adaptation of the edges of the mucous membrane. The field of operation is constantly irrigated with boro-salicylic solution. The edges of the integument I prefer to unite by only a few sutures in order to allow drainage of the first secretion. Opium is administered during the first two days. After the second day the bowels are moved easily with injections, a sitz bath being used after defecation. I performed this operation only once in a case of fistula of tubercular origin, the result being perfect. There was a large shal-

low sinus which did not communicate with the rectum, a condition which in my experience is not infrequent in tuberculous fistula."

If Dr. Lange's operation could be undertaken with the certainty of success known to follow operations for ruptured perineum, his method would soon come into prominence; but the different kinds of tissue implicated in operations around the rectum, the ingenuity and skill required in performing the operation recommended by him, and the fact that many cases of fistula cannot be treated at all by his method, greatly militate against its general adoption. It often happens in cases of complex fistula, that so much tissue has to be cut away to establish the healing process that the edges of the wound cannot be brought in apposition.

Dr. Geo. J. Cook favors Dr. Lange's operation, and says, in *Mathew's Medical Quarterly*, "that ingenious surgeons in all ages have tried the cure of fistula without the use of the knife, because of the public prejudice against such radical procedure. Plasters, salves, ligatures, and the many other methods for a cure have been resorted to, and it is only in the very recent past that the use of the knife permanently took their place as a curative measure certain in its results. The method of operation is as follows: The sphincter is stretched, the rectum cleansed with a bichloride of mercury solution, and the fistula opened by the use of straight scissors; after the removal of all unhealthy tissues, the opening should be closed by a single row of catgut sutures, passed, by means of a curved needle, entirely beneath and around the wound. By this method he had not failed in a single instance to have the bottom of the wound unite."

TREATMENT BY LIGATURE.

The treatment of fistula by the use of the ligature, as advised by Hypocrates, has been revived from time to time. The method has the advantage of being free from hemorrhage and of allaying the fear of being cut, but its range of usefulness is found to be so limited, being suitable for only simple sinuses, which are not always easily determined, that it has lost much of the prestige it at one time had, and is now little practiced by specialists. The ligature only accomplishes in the end, and sometimes after a long period of suffering, what the knife accomplishes in a moment.

It is impossible to determine whether a fistula is simple or not

before exposing the track, and if a ligature should be used through mistake in the treatment of a fistula that has a side branch, the result will be a failure. Even in cases of a single sinus I have known a superficial internal blind fistula to be left at the site of the internal opening after the ligature had cut its way out. This is explained by the existence inside the internal opening of a thick ring of indurated tissue, which is cut through by the ligature only on one side.

There are two distinct methods of using the ligature; one by immediate and the other by mediate action.

The operation by immediate action consists in passing a thread through the sinus and drawing it backward and forward until the fistulous septum is divided. The same object may be accomplished by the use of the galvano-cautery wire. The operation by the thread is obsolete, and that by the galvano-cautery wire has few votaries.

The operation by mediate action consists in the use of either a silk or an elastic ligature, the latter greatly predominating in favor. The preference is given to the silk ligature by some because it is much easier to introduce than the elastic, and is not so apt to break in tightening.

If the silk ligature be used it may be employed in one of two ways; one by ulceration and the other by strangulation. In either method the ligature is passed through the sinus by means of a ligature carrier or a threaded probe, and the two ends secured. If it be decided to divide the included structures by ulceration, the ligature is simply looped and allowed to hang loosely, accomplishing its work by ulcerative action in from two to four weeks. If strangulation be preferred, the ligature is tied as tightly as possible, and in average cases cuts through in about a week's time.

The treatment by complete strangulation is quite painful, particularly during the first twelve hours, and is best adapted to cases having short sinuses. If the fistula has penetrated to some depth, and the amount of tissue requiring division is considerable, it is not advisable to attempt to strangulate it all at once, but to draw the ligature moderately tight at first, and retighten it from day to day. If at the time of the operation it is intended to retighten the ligature, the ligature should not be tied at all, but fastened by means of

a leaden clamp. A suitable clamp may be improvised for the purpose by boring a hole through or partially splitting a bullet.

The elastic ligature was first used by Messrs. Lee and Molthouse, of London, for the removal of *nævi*, and to some extent in the treatment of anal fistulæ, but it had almost fallen into oblivion when Professor Dittel, of Vienna, brought its utility prominently into notice. The elastic ligature has the advantage over the silk of exercising its function evenly and continuously, and requires no readjusting when once properly applied. It consists of a solid cord of India rubber of about one-tenth of an inch in diameter, with sufficient strength to exert a pressure, when stretched to its utmost capacity, that is equivalent to two and a half pounds.

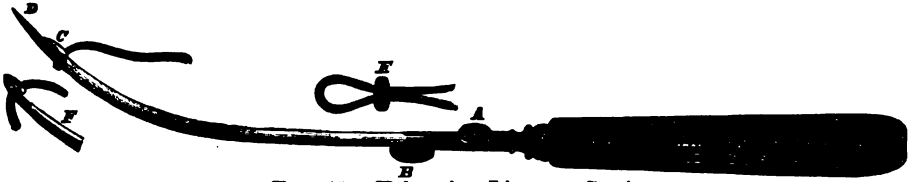


FIG. 45.—Helmuth's Ligature Carrier.

It may not occur to all that the diameter or cutting surface of the elastic ligature is so reduced by tension, while the ligature is acting, that it does not exceed that of ordinary suture silk, and that the force of the ligature gradually diminishes as the tissues yield to its action. Another point to be mentioned is that the tissues heal behind the ligature, if there be no lateral sinuses, as they give way before it. For this reason there is no danger of incontinence following the treatment of fistula by the ligature in cases for which this method is suitable. The average length of time occupied by the elastic ligature in cutting through the tissues, is six days. The shortest length of time in which it has acted was three days, and the longest, fourteen.

The introduction of the elastic ligature through a fistulous passage is sometimes a very difficult and tedious undertaking. To lessen the task, Allingham devised a ligature carrier, which has been modified by Helmuth, of New York. By the ligature carrier the ligature is drawn through the sinus from within outward, being the reverse of the usual method. After the elastic ligature has been

carried through the sinus, both ends secured and the ligature drawn as tightly as desired, the ends may be fastened either by tying or clamping them.

TREATMENT BY THE FISTULOTOME.

It has been noticed that some fistulæ heal spontaneously, and that others require but a little excitation of their internal surfaces to induce them to heal. The mere introduction of a probe into a fistulous track for the purpose of examination will sometimes set up the requisite amount of inflammation necessary to obliterate the sinus. This unusual behavior of fistulæ has led to the employment of various means in the effort to excite a healing action in the sinus, and thus imitate nature's cures. The results of such experiments show that in a few selected cases a curative effect may be obtained either by scarifying the sinus or by cauterizing it. The method of scarifying the sinus originated with Dr. Mathews, of Louisville, Ky. Finding the need of a suitable instrument for the purpose, Dr. Mathews invented one, which he calls the fistulotome. By reference to the cut it will be seen that the instrument is very small, being but little larger than a good-sized probe. It is probe pointed, and easy of introduction, and has two concealed blades within its distal end. By an ingenious screw contrivance in the handle both blades are uncovered at the same time. The blades are of sufficient length to cut through the indurated membrane as the instrument is withdrawn, the plan being to insert the instrument into the sinus as far as possible, then uncover the blades by the screw attachment in the handle.



Mathews' fistulotome.

The cases of fistula for which the fistulotome will be found most serviceable are those of the deep-seated external blind variety, with but one sinus, and that running parallel with the rectum or rather away from it. The farther the opening is from the anus or sphincter action, the more amenable will the case be to this method of treatment. The same may be said of the efficacy of the treatment by escharotics.

The advantages of the fistulotome are obvious: 1. By it the horrors of an operation are dissipated. 2. There is no danger of hemorrhage. 3. There is no interference with the sphincter muscles. 4. There is no need for general anæsthesia.

As a preliminary step in the treatment of a fistula by the use of the fistulotome, the track should be explored with a common probe, to determine, if possible, that only one sinus exists. Being satisfied on this point, a long, slender laminaria tent is gently pushed into the sinus as far as it will go, and allowed to remain there for several hours. The tent is then withdrawn, the sinus cleansed with peroxide of hydrogen, and freely flushed with warm carbolized water. A flexible silver canula, attached to a hypodermic syringe, should be used for the injection of the peroxide of hydrogen, but a hard rubber syringe, capable of considerable force, is preferable for the carbolized water. The silver canula, used for the injection of the peroxide of hydrogen, may also be used for the injection of a ten per cent solution of cocaine to obtund the sensibility of the sinus before inserting the fistulotome.

The introduction and withdrawal of the fistulotome is not attended by any great amount of pain, but the instrument can be handled with much better effect by the previous use of a local anæsthetic. To procure the full anæsthetic effect of cocaine, the solution should come directly in contact with the clean walls of the sinus. As a substitute for cocaine in fistulous passages, we have carbolic acid, which, even in weak solution, is a good surface obtunder, and, when properly used, may prove more satisfactory to some than cocaine.

In cases of long standing, the fistulotome should be turned at right angles, after it has been drawn through the track once, and drawn through the second or third time. If after waiting a few days, sufficient depth does not seem to have been reached, the instrument should again be inserted, and the track rescarified, by observing the same rules as before. The opening to the sinus must be closely watched, occasionally dilated, and under no circumstances allowed to heal before the sinus does.

Concerning the disposition of fistulæ to heal, and the influence exercised over them by the condition of the external opening, Andrews says: "The truth is that anal fistulæ have a natural tend-

ency to recovery, and are held back from it mainly by two things:

1. "The unfavorable effect of the undrained septic fluids within the sac.

2. "The tightness of the external opening, which prevents free drainage and keeps the sac distended with this putrid pus.

"It is demonstrated by Dr. Mathews on the one hand, and by the experiments of quacks on the other, that, by controlling these two conditions, many cases will heal spontaneously. It follows that, among the thousands of patients subjected to cutting operations by surgeons for this disease, there are many who might be cured by much milder means."

I beg to dissent from the statement of Dr. Andrews in relation to the healing tendency of fistulæ. I believe that their natural tendency is not to heal, and that the causes which prevent them from healing are the same as those which prevent the original abscess from healing. The two conditions named by Dr. Andrews are certainly sufficient, when they exist, to prevent the healing of any fistula, but they cannot be given as the principal reasons for the failure of fistulæ to heal generally. These are to be found in the pyogenic, or lining membrane of the sac, and the mobility of the parts.

TREATMENT BY ESCHAROTICS.

The efficacy of the treatment of fistula by the use of escharotics, as has been stated in substance, is about the same as that by the use of the fistulotome, with the preference for and the difference, if any, in favor of the fistulotome. Of the different escharotics that have been used, carbolic acid and nitrate of silver seem to be the only ones worthy of special mention. The caustic, anæsthetic, antiseptic, and antiphlogistic properties of carbolic acid, combined in the one agent, certainly give it precedence over nitrate of silver, though some are quite partial to the latter. I have tried both in the same case, and got no better results from one than the other.

If it be decided to try carbolic acid, the sinus should be prepared in the same way as that recommended for the treatment by the fistulotome, except that local anæsthesia will be unnecessary. It is important that the sinus be well dilated, for this alone has a tendency to break up the tough lining membrane, besides it exposes a greater surface to the action of the acid. The acid should be used

in full strength, that is, ninety-five per cent. The claim that danger attends the injection of a strong solution of carbolic acid into fistulous passages is purely chimerical, and must have had its origin in theory.

After the fistula has been suitably prepared for the reception of the acid, a silver canula attached to a hypodermic syringe charged with the acid, is passed up into the track, the finger inserted into the rectum and the end held over the internal opening, if the fistula be complete, to prevent the acid from escaping into the bowel. The canula is then slowly withdrawn and the acid gently forced



FIG. 48. Flexible silver canula.

out of the syringe at the same time. The residual acid is allowed to remain in the track for a few moments; the track is then pressed by the finger and syringed out with water. Once in two or three weeks is sufficient to repeat the injection of the acid should more than one application be required; often one application of a strong solution will be found sufficient to effect a cure in cases curable by this method.

The object, of course, is to destroy the pyogenic, or lining membrane of the sac by the cauterizing effect of the acid, and get up a granulating carbolic acid sore. It may be necessary to evacuate the bowels previously and at intervals of every three or four days afterward, by flushing the colon, and to use an opium and belladonna suppository for a time to give the muscles rest, or to resort in extreme cases to divulsion. The sinus must have constant, free external drainage until the healing process is complete. For the purpose of keeping the external orifice open, Allingham recommends the introduction of the small end of a bone collar button with a hole drilled through its center for drainage.

Concerning the carbolic acid treatment, Allingham says: "Since the publication of my last edition I have cured many patients by dilatation of the sphincters and the use of the bone stud and carbolic acid. One practical point I would mention. The further the external aperture is from the sphincter the more likelihood is there that the sinus will heal. This is shown as



Bone Stud.

well in the cases of spontaneous cure as in my own successes. You must always enjoin rest after a strong application, and watch that not too much inflammation be set up."

Dr. Wm. Bodenhamer, in speaking of the treatment of fistula without a cutting operation, says: "The chief indication, in patients otherwise healthy, is to destroy the accidental tissue which lines the internal surfaces of the fistulous passages, which, when accomplished, modifies the condition of their parietes, and together with enlarging the orifices of the passages and complete drainage, decidedly favors granulation, cicatrization, obliteration and cure. This may be effected by means of various escharotics, some in the form of fluids, as injections, and others in the solid form.

"I have successfully treated quite a number of cases of simple and superficial anal and rectal fistulæ, in which there existed one or more straight or slightly curved fistulous tracks, by means of probes of silver or copper eight inches long and different sizes. The silver probe may be coated with the nitrate of silver by dipping it several times in the fused salt, and introduced the whole length of the track, or the copper probe may be coated with the nitrate of copper by dipping it in nitric acid, and introduced like the former. A choice can thus be had between the nitrate of silver and the nitrate of copper. I have had the most success with the latter."

Dr. T. J. Bennett, of Austin, Texas, is well pleased with his experience in the treatment of fistula by dilating the sphincters and injecting into the sinus a strong solution of nitrate of silver. His plan of using the nitrate of silver, with which he claims to have had success in every instance, "consists," he says, "in thoroughly cleansing the lower bowel and the fistulous tracks with an antiseptic wash, by means of a suitable syringe. I use for the sinuses a long nozzled uterine syringe, capable of considerable force, and a twenty-five per cent solution of peroxide of hydrogen, or a simple carbolized solution, with which the tracks are freely flooded. The next step is to thoroughly divulse the sphincter muscle, in the usual way, with the fingers. Then again irrigate the sinuses in the same careful manner as before, with the same solution, at last, with plain water. After this, inject into the tracks a solution of nitrate of silver, forty to sixty grains to the ounce of water. Then with a little carbolized oil, or vaseline, spread upon absorbent cotton and bound

to the parts with a bandage, the operation is completed, in simple cases.

"In cases of the internal blind variety of fistula, openings should be made from the outside with the knife in order that the pouches which are always formed at the termini of such tracks, and which always contain pus and débris, may be washed out, and the sinuses cleansed. The only cutting necessary is in this variety, and possibly the enlargement of some of the external openings for the nozzle of the syringe, which is introduced only far enough to inject the fluid. With an experience so limited as mine has been, it would be presumptuous in me to claim to have discovered a treatment that would supersede the long-tried and successful methods of our text-books. I can only say that the above plan is simple, and, so far as I have tried it, it has been successful in every instance. Even a case of recto-vaginal fistula operated on in the same manner, recovered in a few days. In this case, I may say that I employed a seventy-five per cent solution of carbolic acid, instead of the silver, because I did not have the latter solution with me, not knowing or thinking that I should be called upon to do more than lance an abscess, as I had done before for this patient on two occasions, within a year.

"The time saved to the patient in this operation, constitutes one of its chief advantages. The number of days required to remain in the recumbent position is from four to eight, and with no wounds to dress and keep clean, the patient spends this time in comparative comfort."

The rules for the treatment of fistula both by the fistulotome and the injection of carbolic acid, as I have given them, it will be noticed, do not include the dilatation of the sphincters. If the sphincters be dilated in connection with either method, the percentage of cures will be greatly increased.

FISTULA IN RELATION TO PHTHISIS.

During the days of issues, setons and bloodletting, the idea became prevalent among the laity, and was shared by many of the profession, that a fistula has some direct connection with the lungs, whether the lungs are diseased or not, and that a cure of the fistula would result in a lung affection or aggravate one which already

exists. Of course, no educated physician of to-day would entertain such a preposterous idea, but there are quite a number of the people who still have this impression, and advise their friends suffering from chronic rectal disease against curative measures, lest consumption follow as a consequence.

The connection of fistula with the lungs probably grew out of the rather frequent occurrence of fistula in tubercular subjects, leading to its association with pulmonary disease, and also to the belief that a fistula in such cases acts as an issue, or has a derivative effect upon the diseased lungs. Some of the old writers believed that the discharge from a fistula had a modifying effect upon a coëxisting lung disease, but none of them ever taught or intimated that a fistula had any effect upon a sound lung.

According to Messrs. Cooper & Edwards, about twelve per cent of those afflicted with fistula are subjects of tuberculosis, and about five per cent of tubercular subjects have fistula. The appearance of the parts and the characteristics of a fistula in a phthisical subject, are thus described by these gentlemen: "The part is, as a rule, unusually hirsute; the ischio-rectal fossæ are drawn in, owing to absence of fat; the sphincter is weak and offers no resistance to the introduction of the finger. The skin around the orifice of the fistula is bluish and often considerably undermined, and the discharge is thin and watery. The internal orifice is often large, and the mucous membrane around it is also undermined."

Probably no one has had a better opportunity for investigating the subject of rectal and anal fistulæ than William Allingham, of St. Mark's Hospital, London, whose views upon the frequency, the cause of frequency, and the treatment of fistula in phthisical subjects, I am here pleased to quote. He says:—

"I am quite convinced that a very considerable percentage of fistulous patients have more or less tubercular lung affection. I have endeavored to find out what the percentage is, and have carefully gone over a period of seven years in private practice, from 1871 to 1877 inclusive, and find that out of 792 cases of fistula seen by me during that period, 124 had phthisis, either active or latent, or such symptoms as foreshadowed the appearance of phthisis, such, for example, as narrow and flat chests, winter cough, continuing long through the spring, proneness to take cold, feeble circula-

tion, and incapability for sustained physical exertion; also that facial expression which is not uncommon; and I will add that a bad family history was frequently coëxistent. In the years 1878, '79, and '80, I saw, in private practice, 840 cases of fistula, and of these 110 had symptoms of phthisis.

"The rule, in my opinion, is, that fistula in patients who have a predisposition to pulmonary consumption commences by a breaking down of the connective tissue beneath the mucous membrane of the rectum; thus a small abscess is formed, and this makes its way into the bowel very rapidly, leaving a large, patulous aperture. Therefore, I think we may safely say that the same condition of health or constitution which renders a patient liable to pulmonary affections generally, renders him also prone to fistula. These people are usually thin and ill-nourished, and have very little power of resistance against injurious influences; inflammation, which in robust individuals would result only in the effusion of plastic material, in them terminates in the production of numerous and very perishable cells, which readily form themselves into purulent collections, especially in lax tissues. Probably, I should say, the want of fat in the ischio-rectal fossa and its neighborhood disposes to the formation of an abscess there. The veins have to sustain a considerable column of blood, and they are, moreover, exceedingly ill supported, so that local congestions and feebleness of circulation must be a common condition. I am inclined to think that these general causes are usually sufficient to explain the phenomena without any reference to tuberculous depositions.

"It must be obvious to everybody that to operate upon a patient with confirmed and advanced tuberculosis would be a positive cruelty, and would undoubtedly hasten his inevitable fate; but there are different forms of phthisis, some evidently not so destructive as was formerly imagined; and we know that many persons whose chests at one period of their lives exhibited undoubted signs of breaking down of pulmonary tissue, the formation of cavities, etc., ultimately recover, and attain a fair old age. I am quite certain that there are many sufferers from lung affections complicated by fistula, who, because they are said to be phthisical, have nothing done for the cure of their fistulæ, and whose lives, in consequence, are rendered much more wearisome and wretched than they might have been if an operation had been judiciously performed.

"For my own part, I do not think we have many, if any, clinical facts tending to show that the operation for fistula in phthisical patients renders the lung affection worse, or makes it more rapidly progressive. In saying this I must not be understood to advocate wholesale indiscriminate operations upon *tuberculous* patients; but I mean that if care be taken in the selection of the proper cases, avoiding interference, if possible, with *rapidly advancing* phthisis, and the operation be performed discreetly, at the right time of the year, and with favorable surroundings, the patients will generally do well, and be benefited and not damaged by the cure of their rectal malady.

"The question of *cough* is a very important one when weighing the probabilities of an operation doing well or ill. I believe that severe or frequent cough, no matter from what it arises, is most inimical to the well-doing of the patient.

"After the operation let the patient have good diet; by all means plenty of cream and milk; do not confine him to bed; let the bedroom face the south or west, and get plenty of fresh air into the room, the patient lying well covered up, on a couch by the open window for hours, in fact nearly all day. Do all you can to keep him amused and cheerful; avoid poulticing the wound; disturb it as little as possible, keep it clean by gently syringing with a solution of carbolic acid (1 in 50), night and morning, and well dry afterward; dress with wool; ointments, as a rule, do not suit, but astringents are useful."

RECTAL ULCER.

A SOLUTION of continuity, varying from a slight abrasion of the mucous membrane to a marked degree of destruction of tissue, comes within the scope and meaning of a rectal ulcer.

A deep-seated, non-malignant type of rectal ulceration, complicated by stricture, fistula, etc., is not common, and seldom met with outside of hospital practice. The less serious and more simple varieties, such as may be productive of considerable systemic disturbance through reflex excitability, without attracting much if any attention locally, are the forms most frequently seen by the general practitioner.

The following classification of rectal ulcers is given by Kelsey: Simple, tuberculous, scrofulous, dysenteric, venereal and those due to stricture.

Without stopping to discuss the etiology of rectal ulcer, upon which there is not a unanimity of opinion, I will proceed at once to that which concerns the physician most, the general symptoms and treatment of the disease.

With few exceptions, rectal ulcer is insidious in its nature, in some instances passing on to the stage of stricture, which alone may be the first symptom to cause alarm. This peculiarity of the disease is explained, as will be seen by reference to the subject of rectal reflexes, by the gradual development of the affection in a place comparatively free from sensory nerves. It is noticed that the closer a rectal lesion is situated to the external sphincter or verge of the anus, where the nerve supply is the greatest, the more quickly will it make its presence known, as is observed in cases of fissure, or irritable rectal ulcer.

When ulceration begins above the sphincters, and does not at first implicate these muscles, the earliest local symptom of the disease is diarrhoea. A morning diarrhoea is characteristic of rectal ulcer of any gravity, although, strange to say, authors have never dwelt upon the importance of this symptom. I have never examined a

case of rectal ulcer of any magnitude which had not previously passed through the hands of some prominent physician, and in not a single instance had the physician ever shown the slightest evidence of having suspected the true nature of the disease. The following case is a fair example corroborative of my statement:—

Mr. A., aged about 35, clerk, complained of morning diarrhœa, uneasiness about the rectum and a constant discharge at the anus, which necessitated the wearing of a clout. His physician, a college professor, diagnosed hemorrhoids, prescribed ointments and had removed two or three small condylomata for piles, and thought a cure would be effected when all were removed; one remained. The morning diarrhœa and the annoying discharge continued, and the patient was advised, not by his physician, however, to see a specialist.

A short history of the case being given to me, the patient was informed that his symptoms were those of rectal ulcer, the absence of a prolapse at stool precluding the idea of internal hemorrhoids. A digital examination revealed an ulcer occupying nearly the entire surface of the bowel for a distance of an inch and a half or more above the external sphincter, with a semilunar stricture involving the posterior half of the upper margin of the internal sphincter. Further inquiry developed the fact that there was a previous history of syphilis, which was contracted in early manhood. The ulcer probably begun in the cul-de-sac of the rectum, and gradually extended downward over the surface of the internal to near the external sphincter, giving rise to the discharge at the anus and the formation of the condylomatous growths.

The most graphic description of the symptoms and course of rectal ulcer which I have ever read, is from the pen of Dr. A. C. Hall, of Chicago, and is here reproduced in full:—

“Rectal ulcer is a more common disease than is generally supposed. Unfortunately the symptoms are generally obscure, and the patient suffers but very little if any pain, and consequently consults his physician for some of the reflex symptoms, rather than for the initial disease itself; and very often these reflex symptoms are vainly treated till the patient and physician are both thoroughly disgusted and disheartened. There is one maxim which every physician should always bear in mind, and that is, *always suspect rectal ulcer in every case of protracted or chronic diarrhœa*. I have reports from eighty-six

pension surgeons, in which they estimate that they have examined two thousand cases where chronic diarrhœa was the alleged cause of disability in applicants for pensions. Of these two thousand cases of chronic diarrhœa, eighty-seven per cent had rectal ulcer, and fully ninety per cent of those who claimed chronic diarrhœa as their disability and who had no ulceration were rejected, because their proofs of the disease, aside from the ulceration, were too meager. Thus the strongest and most prominent symptom of rectal ulcer is *chronic diarrhœa*.

"The diarrhœa is generally more troublesome in the morning. The patient often on arising feels an urgent desire to go to stool. This act is often very unsatisfactory, for he passes very little feces and a great deal of wind. Occasionally these small stools are covered with a jelly-like or white of an egg substance, or the motion may be only a jelly-like mucus, with no feces. There is generally more or less tenesmus, or a disagreeable feeling, as if the rectum was imperfectly evacuated. Sometimes the patient will be compelled to go out two or three times before breakfast, and he may in the later attempts to have a stool, pass lumpy or scybalous feces, covered with mucus, and often streaked with blood. There sometimes exists, as a symptom of rectal ulcer, a desire to go to stool when cold drinks are taken. But generally the diarrhœa and tenesmus subside soon after breakfast, and the patient has no more trouble until the next morning. A great many, or I might say a majority of those suffering from rectal ulcer, consult the physician for some symptom or other that suggests anything else but the rectum, but by close questioning and following up the symptoms, one can soon tell whether they are reflex or otherwise.

"In cases of rectal ulcer of long standing, there is always more or less cachexia, or peculiar waxy, sallow, unhealthy complexion, which sometimes alone points significantly towards the disease.

"There is often more or less enlargement of the liver and spleen, especially the spleen.

"In advanced cases, the diarrhœa comes on at night as well as morning, and defecation is accompanied with pain and griping. Another almost characteristic sign of rectal ulceration is alternating diarrhœa and constipation. The bowels remain constipated for a considerable while, then diarrhœa supervenes, and is accompanied

by severe and excruciating colicky pains and often nausea. Persons subject to chronic diarrhoea always dread to take a physic to relieve a temporarily constipated state, for it will almost invariably put them to bed.

"In extreme cases, infiltration and thickening of the submucous and muscular coats supervene, as a result of nature's effort to repair the lost tissue. This thickening may be so extensive as to threaten and actually produce stricture. It will often convert the rectum into a passive tube, through which feces and fluids trickle, the patient having little or no control over the sphincters.

"On examination, by means of a speculum, the ulceration will be found about an inch or an inch and a half from the anus, generally on the posterior wall, but often on the anterior wall.

"When the ulcer is on the anterior wall, there is more or less irritability of the bladder, and seminal emissions or impotency. The ulcer itself may be round, oval or elongated, radiating or following the columns of Morgagni. The ulcer may present ragged, interrupted elevated edges, or they may be sharp cut and regular, as though cut with a sharp punch. The edges are sometimes hard and gristly, or may be soft and have no elevation above the surrounding tissues. The surface of the ulcer is often clean, and healthy looking granulations may be seen, or the ulcerated surface may be loosely covered with a greyish, grumous scum, that is offensive and decidedly unhealthy for the patient. Underneath this scum there is often found an ulcerated spot, that is apparently lifeless, and will require much attention, locally and constitutionally, to prevent its rapid extension. In this form of rectal ulcer there is always more or less marked cachexia. It is the indolent ulcer, occasioned by the gradual breaking down of the tissues, that produces the grave constitutional disturbances and death. It is the small, round, or oval ulcer, with elevated, hardened edges, that produces the many and various reflex nervous symptoms, which are misleading and troublesome."

Allingham speaks of a very rare species of rectal ulcer, which he terms rodent, or lupoid. He describes it as being very painful, and says that it was cured only by complete extirpation. Its principal characteristics, aside from the pain spoken of, are given by him as follows:—

"In its early stage the ulcer is very difficult to distinguish from a syphilitic sore, and when it is situated just within the sphincter it may also readily be mistaken for the ordinary painful rectal ulcer. Its edges are sharp and cleanly cut; it does not undermine the mucous membrane; it destroys completely, as far as it extends; neither its edge nor its base is at all hard, and the mucous membrane around it is perfectly, and I may say abruptly, healthy. Its surface is very red and mostly dry; there is scarcely ever any amount of discharge from it. It sometimes destroys deeply, but its tendency is to spread superficially and to attack mucous membrane rather than skin, though in some of the cases I have observed, it invaded the borderland between mucous membrane and skin, and it may spread even to a considerable distance on the latter.

"Rodent or lupoid ulcer may be distinguished from epithelioma by the following peculiarities: It does not invade neighboring organs by infiltration, nor does it contaminate through the lymphatics; as far as I know, it never forms secondary deposits, and it produces no hardness. It is not, I am informed by microscopists, a disease of the follicles of the rectum.

"It differs from secondary or tertiary syphilitic ulceration in not inducing stricture of the rectum or any submucous thickening; and this difference arises from its being essentially a destructive ulceration, no long-continued effort at repair which would cause permanent deposits taking place."

TREATMENT.

The treatment of rectal ulcer is quite simple, and may be given in comparatively few words. When the ulcer is within the limits of the sphincters and not very large, a suitable speculum should be inserted, the sore exposed, cleansed with peroxide of hydrogen, dried with absorbent cotton, and thoroughly cauterized with nitrate of silver, forty grains to the ounce, or pure carbolic acid. A few days should elapse before anything more is done, and then the treatment should be conducted upon the same plan as that recommended for healing a fissure.

In the more extensive forms of rectal ulceration, the curetting of the diseased surface, either with a dull or a sharp curette, whichever the needs of the case demand, is a rational and I believe the

most satisfactory plan of treatment that can be adopted. A dull curette should be used for ulcerated surfaces when no fibrous tissue exists, and a sharp curette for the removal of any fibrous tissue or for the curetting of any part of the surface of the sphincters. This method of treating rectal ulceration, as far as I have been able to ascertain, is entirely new, and was suggested to me by the impracticability of cauterizing extensive ulcerations above the sphincter muscles.

The first case upon which I tried the curetting process was one of unusual interest. The patient, a gentleman of about 55, had been a sufferer for several years, during which time he had been continuously treated for hemorrhoids, although there was no prolapse at stool, as is characteristic of hemorrhoids of any size, nor was there a single cutaneous tag or external growth of any kind about the anus. He had the usual symptoms of rectal ulcer of an advanced stage. Aside from the persistent diarrhoea, which at times alternated with constipation, he had the peculiar waxy, sallow, unhealthy complexion, and was so badly emaciated that his family had about despaired of his recovery. I diagnosed rectal ulcer from the subjective symptoms, and upon a digital examination (no speculum is needed in these cases) an ulcer was found which occupied the entire surface of the cul-de-sac of the rectum, and extended up the bowel posteriorly, as I afterward learned, nearly to the sigmoid flexure. The sphincters were not implicated and there were no signs of stricture, or the formation of any fibrous tissue, but there were a few small nodular deposits, which bled upon slight pressure and were easily detached. There was no history of syphilis or anything else pointing to the etiology of the case.

The patient was sent to St. Luke's Hospital, of this city, where he was seen by the surgeon of the hospital staff, Dr. C. G. Kenyon, who made an unfavorable prognosis of the case, maintaining that the disease was malignant. Dr. Kenyon based his conclusions upon the general appearance of the patient, which in these cases is similar to that of the cancerous cachexia. Prefatory to the treatment a saline cathartic was given and its action followed by a flushing of the large intestine. In about one hour after the flushing, chloroform was administered, the sphincters moderately dilated, and a speculum inserted with the intention of applying carbolic acid to the diseased

surface; but the ulcer was found to extend so far up the bowel, and blood flowed so freely from its surface, that no attempt was made to use the acid. The speculum was then withdrawn, a dull uterine curette, large size, introduced, and the diseased surface thoroughly scraped. Some bleeding followed, but not enough to necessitate the use of a styptic. During the first part of the after treatment, hot-water irrigations, and suppositories of iodoform, opium and bismuth were employed, and later pinus canadensis, witch hazel and bismuth.



FIG. 50. Rectal irrigator.

The constitutional treatment was supportive. The patient remained in the hospital for three weeks, and then returned to his home in the interior of the State. The cure seems permanent, four years having elapsed since the treatment.

The usual local treatment of rectal ulcer consists in making direct applications to the diseased surface through a speculum, when this can be conveniently done, otherwise in the use of suppositories and various washes. Five grains each of iodoform and bismuth with a little opium or morphia make a good suppository. A solution of nitrate of silver, two grains to the ounce, is a popular wash, and may be used in conjunction with the iodoform and bismuth suppositories. One or two ounces of the nitrate of silver solution is thrown into the rectum and allowed to run out, after which one of the suppositories may be inserted. The suppositories may be used twice a day, but the nitrate of silver only once in two days. Hydrastis and pinus canadensis are also recommended. Whatever medicament is used it should be preceded by a rectal douche of hot borax or carbolized water. The experience with simple ulcers is that they heal through cleansing and antiseptics.

In the management of bad cases of rectal ulceration, constitutional treatment is of paramount importance. Little can be expected without it. The success of the treatment of the syphilitic variety depends almost wholly upon the internal anti-syphilitic treatment.

Another important element in the treatment of rectal ulceration is rest. Rest, both of the parts and the body, is absolutely necessary. Rest in these cases means prolonged rest in the horizontal position, and "not," says Kelsey, "such rest as is usually considered by ladies to be compatible with a morning bath, a rather elaborate toilet while standing before the mirror and walking round the room, and a final sitting down to comparative quiet in an easy-chair or on a lounge."

FISSURE, OR IRRITABLE ULCER.

A FISSURE, or an irritable ulcer of the rectum, is a lesion of the mucous membrane just above or near the muco-cutaneous junction, and is distinguished from other lesions in the same locality by giving rise, under certain conditions, to a spasmodic contraction of the sphincter muscles and paroxysmal pain of a peculiar character. Most authors use the term anal in designating this affection; but as the anus is the dividing line between the external and internal surfaces, corresponding to the junction of the skin with the mucous membrane and marks the termination of the rectum, it would seem that a disease confined to the mucous membrane and which cannot be seen when the muscle is closed, is properly within the rectum, and should therefore be called rectal.

The strongest reason, however, which prompts me to eschew the word anal in designating an affection of the rectum so near the anus, and commonly called anal, is to avoid confusion. An anal fissure is a crack, breach, or rhagas of the skin at the anal verge, which may be compared to a chap in the lips, on the knuckles or in the web between the toes, and although a very painful affection, is comparatively trivial. It is primarily a lesion of the skin, is not common, is easy to get at, and will receive no further attention. A rectal fissure, on the other hand, is primarily a lesion of the mucous membrane, and only affects the skin, if at all, by plastic infiltration at the lower extremity of the ulcer, forming a little cutaneous fold, tag, or excrescence at the anal verge. This little formation has been erroneously called the "sentinel pile," probably so called because it stands at the entrance to the bed of the fissure, and was thought to be a pile. Dr. Richard O. Cowling, deceased, was the first to call attention to the constancy of such a formation at the lower extremities of fissures, and looked upon it as pathognomonic of the disease. It is common to the disease, but not to recent cases, and I can say for certain that I have not found it present in some

cases of several months' standing. Its early appearance, I think, depends upon the low situation of the ulcer.

Some authors make a distinction between rectal fissure and irritable rectal ulcer, basing their point of distinction upon the shape and location of the ulcer. If the ulcer occupies a position just within the anus, with its inferior extremity reaching down to the skin, and is longitudinal in shape, it is called a fissure; but if situated a few lines above the edge of the skin, or entirely over the internal sphincter, is roundish or ovoid in shape, and has distinct edges, with a reddish, sometimes grayish, base, discharging pus, it is called an irritable ulcer. I am sure that I have seen a breach in the mucous membrane at the place named for irritable ulcer, which had every appearance and all of the symptoms of a typical fissure (Fig. 51); and also that I have seen an ulcer answering to the description of those called irritable at the place named for true fissure, and which had degenerated from a true fissure, but had lost all of its irritability. Since all irritable ulcers, whatever be their shape and location, produce the same train of symptoms (spasm and pain), and call for the same plan of treatment, I do not see that any particular advantage is to be gained in differentiating the varieties.

Gosselin divides fissures, or irritable ulcers, into two distinct varieties, tolerant and intolerant. Dr. Mathews says: "I am satisfied that the division line is Hilton's white line. In other words, if the ulcer be located above this line, it is tolerant; if below, it is intolerant." By reference to "Hilton's Anatomical Discovery," pages 58 and 76, and the definition of fissure as given by all authors including Dr. Mathews himself, namely, that a fissure is a lesion of the mucous membrane, it will be seen that the latter's conception of the reason for tolerant and intolerant ulcers is false. Hilton's white line corresponds to the junction of the skin with the mucous membrane, and therefore anything below that line would be entirely of the skin. I concur in the belief that the greatest sensibility is below Hilton's line, or over the external sphincter, but what are commonly called "anal fissures," and to which I have given the name rectal, are all above this line. A genuine, primitive fissure is never tolerant. When it becomes tolerant it has lost its identity and then behaves as other sores do. A fissure may partially heal by palliative treatment, and temporarily become tolerant, then sud-

denly break out afresh in all of its former intensity. Such outbursts of the disease may occur at irregular intervals for some years, and finally a thickening, or a hypertrophy of the sphincter muscles supervenes as a result of repeated spasms.

In its recent state, a typical fissure presents the appearance of a longitudinal tear of from three to five-eighths of an inch in length, looking raw and bloody, with ragged and somewhat everted edges. In depth, the ulcer may extend through the mucous membrane and submucous connective tissue down to the sphincters, laying bare some of the fibers of these muscles, or it may extend only through the mucous membrane, and I have seen it so superficial that it appeared to be little more than a slightly depressed reddish streak with a smooth bottom and unbroken edges.



Fig. 51. Fissure, complicated by poly-poid growths.

Kelsey says: "Although these ulcers are generally stated to be due to an act of laceration of the mucous membrane, or to its abrasion from some irritation, they not infrequently originate within the sinuses of Morgagni, and a true fissure may be entirely concealed from view within one of these pouches."

Commenting upon Kelsey's statement, Mathews says: "Theoretically, I cannot believe in this source as explaining the symptoms of fissure. In the first place, there is no exposure of the nerve filament in the sinuses of Morgagni, and, in the second place, the anatomy does not permit of its being embraced by a contraction of the sphincter muscle, as in the other forms of fissure."

It is not necessary that the external sphincter should be encroached upon or that an exposed nerve filament should be within its grasp to cause it to spasmodically contract. The seat of the irritation may be as far away as the upper part of the internal sphincter, and yet reflexly excite a spasm of the external sphincter, though the spasm is not as severe in such instances nor the pain as intense as when the irritation is situated lower. This fact has been demonstrated to me more than once in the treatment of internal hemorrhoids (see page 58). Dr. Mathews seems to forget that there is an internal sphincter, and that it is sensitive to impressions, particularly at its lower border, the place occupied by fissures. In width, it should be remembered, the internal sphincter is about

three times the thickness of the external sphincter, and as a muscle it certainly performs an important function in assisting to close the rectum. Just how much it is concerned in a spasm is not known, but the two muscles are so closely attached that one cannot act without the other. The external sphincter, according to Hilton, is covered by skin, and fissure being an affection of the mucous membrane, it follows that a fissure seldom engages any more of the external sphincter than its upper edge, and sometimes not that.

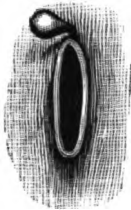


Fig. 52. Fissure unfolded; a polypus at its upper extremity.

Although mostly a solitary lesion, fissure is sometimes multiple, especially when of syphilitic origin. Its position is usually dorsal, being rarely situated anteriorly or laterally. It may be complicated by polyps or other rectal disease, as hemorrhoids, and is more common among women than men. It is a disease essentially of adult life, though very young children are not exempt from it. The late Dr. D. Hays Agnew mentions having seen it occur in infants not over two months old.

Of all the diseases of the rectum, considering the apparent insignificance of the lesion, fissure heads the list as a pain producer. Fissure has characteristics peculiar to itself, and I do not think, as is claimed, that its location just above the muco-cutaneous junction, or Hilton's line, near where the nerve supply is the greatest, explains all of these characteristics; neither do I believe that it is a disease essentially of traumatic origin, although doubtless hastened by muscular action and straining. No other ulcer, wound or abrasion in the same locality produces the pain that identifies a fissure.

The fact that the abrasion is nearly always located posteriorly, a little to one or the other side of the median line, and that it occurs when the bowels are perfectly soluble, when cherries are out of season and the diet excludes the possibility of the patient having swallowed a fish bone, a cherry stone, or any other hard or indigestible substance, greatly militates against the theory of the exciting cause being a cut from the pit of a cherry or a tear from an over-distension of the mucous membrane by a large stool; but, on the contrary, does strongly favor a constitutional predisposition and a local condition of idiopathicity, probably belonging to a strumous diathesis.

A fissure is aroused from its slumbers by a mechanical disturbance of the slightest nature, and is justly entitled to the name irritable, the act of defecation being followed by a dull, sickening rather than lancinating pain, which may last for several hours, and usually incapacitates the subject from labor. The mere introduction of the finger into the rectum during a paroxysm of pain may produce a deathly pallor, and possibly syncope.

The identifying pain of a true fissure partakes somewhat of that of neuralgia, and is comparatively insignificant at the time of stool, but commences a little while afterward, creating a desire, in some instances, to press the hand against the anus, hug the chair or sit on something hard. One sufferer who had become habituated to the use of morphia from this cause, stated that he obtained some relief by sitting on a morphine bottle and crowding it up against the rectum.

In character, the pain and the time of its beginning after stool vary with the location of the ulcer. If the ulcer be situated low and directly implicates the external sphincter, the pain commonly begins immediately after stool, and is usually more acute and throbbing in character; whereas, if situated higher, the pain does not begin as soon, sometimes not for an hour or more after stool, and is then more dull and aching in character. The time of going to stool is often delayed three or four days by those suffering from fissure, because of the pain most surely to follow. Hot applications are of little benefit in relieving the pain caused by this disease.

DIAGNOSIS.

Uncomplicated fissure is extremely easy of diagnosis, the subjective symptoms alone being sufficient to determine its existence, although an inspection should always be made. The pain after stool, the absence of a prolapse, and the entire freedom from pain after the paroxysm has passed off until the next movement, with a little blood sometimes following the motion, are pathognomonic symptoms. Fissure is most frequently uncomplicated, but when it is associated with other disease, either as the principal disease or as the complication, the characteristic pain after stool will unmistakably point to it as being the chief cause of complaint. Few who have fissure know what their disease is before applying for treatment.

Most fissure patients believe that they have piles, which is often a reflection upon the family physician, who has been prescribing the usual pile ointments and suppositories with little benefit, and never once thought of fissure.

Ask the patient to lie on the side mostly affected by pain, and look for the little formation at the anus spoken of as a constant accompaniment of fissure of any advancement. Gently draw down the mucous membrane just above this little tumor, while the parts are extruded, and the lower end of the ulcer can always be distinctly seen. If the case be recent and the ulcer superficial, with nothing externally to indicate its site, some difficulty may be experienced by the novice in finding it. The patient can nearly always give something of an idea of where to look. By drawing the mucous membrane down in the manner described, and closely inspecting and tracing its folds, it is hardly possible that the ulcer could escape detection, even though it be extremely superficial and narrow. The common site of fissure, it must not be forgotten when locating the disease, is at the coccygeal, or posterior aspect of the entrance to the rectum.

The introduction of the finger or a speculum for the purpose of examining a fissure is an unnecessary infliction of pain. Should there be an undiscovered complication, as a small polypus or a hemorrhoid, it can be easily attended to at the time of the treatment. If, however, it is desired to insert the finger for the purpose of locating the attachment of a polypus or of determining the extent to which the edges of the ulcer have become indurated, in cases of long standing, pressure should be made by the dorsum of the finger against the muscles at a place opposite the ulcer, until the finger is well introduced.

"Although so limited in extent and simple in appearance, and so readily curable," says Dr. Lewis H. Adler, "fissure is capable of producing some powerful reflexes, and sometimes exercises a most potent influence in undermining the patient's health," particularly, I would add, during some of those severe prolonged periodical attacks.

TREATMENT.

The treatment of fissure, like most diseases admitting of surgical treatment, is divided into the palliative and operative, with a

decided preference in this particular disease for the operative. I inform patients suffering from fissure that they can be cured, by submitting to a slight operation under anæsthesia, in about five minutes. As a rule, this will be objected to and a palliative course preferred. I always dwell upon the length of time often required, the tediousness of the work, and the pain which may be experienced by adopting a palliative course. The usual objections to an operation are the dread of general anæsthesia, and the loss of time required to recuperate after the operation, which ordinarily takes from five to seven days.

We know that many cases of fissure are cured by ointments alone, that some yield to a few direct applications of a selected caustic, and that others call for the employment of the most heroic measures. Upon the disposition and will power of the patient and the ingenuity and tact of the physician will depend the success of the treatment of fissure, in most cases, without the dilatation of the sphincters. Comparatively few physicians and surgeons can apply themselves sufficiently, and have the gentleness of touch necessary to cure fissure by the use of the speculum, caustics and the scissors. These qualifications are more commonly found in the oculist and aurist, and the dentist.

When attempting to cure a fissure without dilating the sphincters, the treatment should first be directed to the relieving of the ulcer of its irritability, and then to the changing of the condition of the mucous membrane surrounding it. No fissure can heal with an irritable surface or with ragged, indurated or overlapping edges. To relieve the ulcer of these conditions and convert it into a simple, granulating sore, with no better advantages than we have for doing such work when the patient is not anæsthetized, is, to say the least, anything but an easy task for those not experienced.

The little tumorous formation commonly found at the lower extremity of a fissure can be removed, and the lower end of the ulcer handled without much difficulty; but the principal part of such ulcers cannot be exposed without the use of a speculum. Owing to the disposition of the sphincters to contract upon a speculum when introduced in these cases, giving rise to pain, and the very limited space in which the operator has to work after the diseased surface has been exposed, little can be done at a time toward

the preparation of the ulcer for the healing process, and that little only at such times as is consistent with the feeling of the patient.

Before inserting a speculum for the purpose of exposing a fissure, the ulcer should be anæsthetized by applying to it a ten per cent solution of cocaine. This may be conveniently done by wrapping a small piece of absorbent cotton around the end of a probe, dipping the probe in the cocaine solution, placing it in the ulcer while the mucous membrane is drawn down and the parts extruded, and then allowing the patient to retract upon it, thus drawing the instrument inward. The probe should be left in position for several minutes. If any ointment has been used about the ulcer, it should be removed by subjecting the parts to a hot-water douche before



FIG. 53. Long tenaculum.

using the cocaine, as cocaine will not take effect upon a greasy surface. The speculum should be introduced in the same manner as that recommended for inserting the finger.

Two or three thorough applications of pure carbolic acid to a fissure will frequently be sufficient to convert it into a simple, tolerant sore. The most effective way of applying the acid is to saturate a piece of absorbent cotton with it, lay the cotton in the ulcer and permit it to remain there for a few moments. After the ulcer has lost most of its irritability, attention should be turned to its edges, and if found at all indurated or overlapping, they should be raised with a tenaculum and pared off all around with slightly-curved narrow-bladed scissors. It is not expected that more than a portion of the edges can be removed at one time, for the obstruction to the sight caused by the flow of blood through the removal of the first piece, and the strain upon the patient from the pressure of the speculum, etc., will hinder for the time further progress in the work.

There is no necessity for injecting cocaine into the edges of the ulcer for the purpose of removing them unless they should be quite thick, and considerable tissue has to be removed. Ordinarily, sufficient anæsthesia may be produced to make the cutting almost if not entirely painless by dipping a pledget of cotton in carbolic acid, as in the former instance, and laying it against the part to be removed.

To obtain the full anæsthetic and cauterant effects of carbolic acid, a quantity of it should be left in contact with the part for a brief length of time. The frequent application of carbolic acid to a tolerant or an intolerant ulcer is not attended by any pain or bad after-effects. For the removal of any part of the ulcer, however, where the sensibility is great, as the lower edge, and also the little tumor found attached there, cocaine should be injected. The speculum should be so adjusted that the edge to be removed will come in or near the middle of the fenestrum, thus permitting the edge to become somewhat everted by allowing it to project above the sides of the fenestrum. No troublesome bleeding need be feared from the excision of the mucous membrane around a fissure. Such superficial cuts seldom bleed any after the speculum has been withdrawn. If a small vessel were to be wounded, and continued to bleed after



FIG. 54. Pratt's curved scissors.

the withdrawal of the speculum, compression by the action of the sphincters upon a little ball of cotton placed over the vessel will immediately stop the flow.

Should any swelling or much soreness follow the manipulation of the ulcer in the manner described, the patient should be instructed to direct a stream of hot water on the sore once or twice a day, and apply to it a soothing ointment:—

R. *Opii pulv.*.....gr. viij—xvj
Ung. belladon......3ss

The bowels should be kept soluble when allowed to move of their own accord, although I do not favor their movement in the treatment of fissure, oftener than once in three or four days, and then only by the aid of an enema; the object being to give the surface of the sore and the muscles rest, the same as is obtained by forced dilatation. If the patient can be made to understand how to properly flush the colon, no inconvenience will be experienced by confining the bowels for the length of time named.

After a fissure has lost most of its irritability, or even before, if the opportunities to handle it are not frequent, some kind of an ointment should be used by the patient as an intercurrent remedy. Belladonna in the form of an ointment holds a conspicuous place in the treatment of fissure generally and particularly where there is marked excitability of the sphincter, some claiming cures from it alone. Salicylic acid and corrosive sublimate are, however, the chief curative agents in the treatment of this disease.

R. Acidi salicyl.....gr. xv-xxx
 Morph. sulph.....gr. j-ij
 Ung. belladon..... $\frac{3}{4}$ ss
 Misce et sig. Use twice daily.

If the surface of the ulcer is fresh, a salicylic acid ointment representing much over five per cent of the acid is sometimes productive of pain. It is said of salicylic acid that it has the power of dissolving callous tissue, as evidenced in the treatment of corns, and that it acts to cure fissure by dissolving the callous, or indurated edges of the ulcer.

A physician who had been a great sufferer from the effects of a fissure, informed me that he had been etherized twice and had the sphincters thoroughly stretched, and had submitted to incision three times for the cure of the disease, all of which had proved fruitless, and that finally he was permanently cured by the use of salicylic acid and vaseline. I think that the failure to cure by the dilatation of the sphincters in this case was due to an oversight of the physicians in not paring off the edges of the ulcer.

If I were restricted to the use of a single ointment in the treatment of fissure, and were privileged to select that ointment, it would contain salicylic acid.

The following formula containing corrosive sublimate is a slight modification of one which was taken some years ago from a medical journal, where it was highly praised for lessening pain and hastening cicatrization:—

R. Hydrarg. chlor. corros.....gr. ij-iv
 Morph. mur.....gr. ij-iv
 Ung. belladon..... $\frac{3}{4}$ j
 Misce et sig. Use twice daily.

Corrosive sublimate, like salicylic acid, will cause pain when applied to freshly denuded surfaces unless considerably diluted. If the fissure be recent or has been recently handled, two or two and a half grains of the corrosive chloride to the ounce of belladonna ointment or vaseline, if preferred, will be sufficient until the diseased surface becomes less sensitive. The morphia may be varied in quantity in either formula or left out altogether. Neither of the original formulas contained morphia. Should it be desired to increase the consistency of the ointments, equal parts of belladonna and simple cerate may be used.

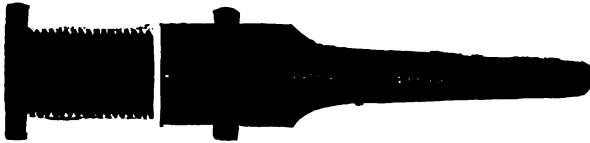


FIG. 55. Ointment applicator.

Aside from the occasional application of carbolic acid to a fissure, after it has been divested of its ragged, indurated, or calloused edges and become tolerant, other less caustic though more stimulating applications may, in some instances, be required to arouse the latent energies of the inactive sore and excite healthy granulations. Prominent among such remedies will be found nitrate of silver (stick) applied very gently so as to leave a thin coating of albuminate of silver; and also a solution of corrosive sublimate, gr. ss to water \bar{z} iv, applied with a camel's hair brush after the ulcer has been cleansed and dried with absorbent cotton. This method of using corrosive sublimate is preferred by some to that of using it in oint-



FIG. 56. Long cocaine needle.

ment form. Two grains of muriate of morphia should be added to the solution to make its application painless. The stimulation of the ulcer by cleansing it with pyrozone or fresh peroxide of hydrogen, and then filling it with aristol has favorable mention.

Fissure does not seem to heal from the bottom, but from the sides and upper and lower extremities. The edges of the surrounding mucous membrane are, therefore, to be watched and nicked or kept pared off in the event of becoming indolent. When a fissure acts stubbornly and refuses to heal without any apparent

cause, I see no objection to anæsthetizing its surface by the application of carbolic acid, and scarifying it by making several superficial stabs with a sharp-pointed curved bistoury, or to incising it by drawing the bistoury down through its center, including in the incision the mucous membrane at both ends. In fact, I am becoming quite partial to this method of hastening a cure in this disease, and am beginning to practice it much earlier than formerly. I have just cured an indolent ulcer of two and a half years' standing, which had originated from a fissure, by simply paring off the edges and scarifying the surface. The case had passed through the hands of six physicians, and according to the statement of the patient, not one of them had ever thought of relieving the ulcer of its sharp, fibrous and undermined edges or of scarifying it. The bistoury should be curved and very sharp at its point to make the cutting easy and painless.

Some fissures heal by providing them with an adhesive, flexible artificial coating. Preëminent for this purpose is flexible collodion applied to the surface of the ulcer after it has been cleansed with pyrozone or peroxide of hydrogen, and dried with chloroform and absorbed cotton. The chief factors concerned in the healing of a fissure or any other rectal ulcer, after the ulcer has been put in a suitable condition for healing, it must be remembered, are rest and surface protection.



FIG. 57. Curved bistoury.

The quickest way to destroy the surface of a fissure and convert it into a simple, tolerant ulcer without resorting to incision or sphincter dilatation, is to superficially inject into and beneath the bed of the ulcer, in a sufficient number of places to encompass its length, possibly three, one or two drops of the solution recommended for the treatment of hemorrhoids, and produce a slough. I have treated both deep and superficial fissures by this method, but I do not recommend it in cases of very deep fissure, for the reason that injections into the tissue of the internal sphincter, as we have seen in the treatment of internal hemorrhoids, is liable to be followed by pain, and sometimes

spasm. My principal objection to this method in the treatment of deep fissures, however, is that the destruction of tissue both laterally and in depth leaves a depressed cicatrix.

A fissure properly treated by injection will lose its identity, as far as the characteristic pain goes, immediately, and the patient will be delighted to know that he can then go to stool without fear of the subsequent pain previously experienced, although no inconsiderable length of time may be required to heal the resulting simple ulcer. Should there be any swelling or much soreness to combat, while the superficial slough, which acts as a protecting agent, separates, hot poultices and hot-water applications are to be made to the anus. An ointment of opium and belladonna may also be smeared about and within the anus, to subdue, relax, and keep at rest an excitable sphincter and relieve spasm.

It appears that the mucous membrane in persons suffering from fissure has little inclination to heal, with, in most cases, a marked disposition of the broken edges to become indolent, inverted and calloused, a condition observably wanting in those who are not prone to the disease, having seen the mucous and the submucous connective tissues in the latter class destroyed by carbolic-acid injection time and again, in the locality occupied by fissures, go through the usual changes and readily heal, with little more than vaseline and absorbent cotton dressings.

As stated by Allingham and mentioned by Dr. Lewis H. Adler, Jr., in a brochure on fissure and fistula, "the curability of fissure does not depend upon the length of time during which the disease has existed, but rather upon the pathological changes it has wrought." This statement I am fully prepared to confirm, having cured a case of over two years' standing, and which was of rather more than average severity, by two applications of carbolic acid and the use of the salicylic acid ointment. The little tumor at the lower end of the ulcer, which in this case was hard, and nodular in appearance, was removed at the time of making the second application of the acid. To insure perfect drainage, the excision of these little formations should include enough tissue to lay bare the bed of the fissure at its lower extremity. A little pocket is often formed here by the infiltrated tissue, which, by retaining a portion of the secretion, is of itself a sufficient cause to prevent granulation.

TREATMENT BY DILATATION OF THE SPHINCTERS.

Under the name of *massage cadencé*, Recamier practiced a species of sphincter dilatation for the cure of fissure, which consisted in pinching, pressing or rolling the muscle between the thumb and finger or fingers in such a manner as to partially if not entirely overcome its resistance. This was repeated in a regular, methodical way until a cure was effected. Maisonneuve, grasping the principle of the treatment, advocated a more rapid and thorough dilatation, by which the entire hand was introduced into the rectum, tightly closed and the fist forcibly withdrawn. Both methods were practiced without anæsthesia, and the latter, to say the least, must have been extremely brutal.

Two things are accomplished by forced dilatation in the treatment of fissure. First, the bed of the fissure is torn through by the stretching and the form of the ulcer changed. Second, the fresh breach thus made is given rest by the paralysis or inertia of the sphincters, until reparation is almost complete. No particular preparation of the patient is necessary except the evacuation of the bowels, and even this formality may in a few extreme cases have to be omitted. The bowels may be evacuated either by catharsis or by the flushing process, whichever the circumstances of the case seem to favor. If by the latter, the evacuation can be deferred until one-half or three-fourths of an hour before the time for doing the operation, and the patient spared considerable pain. If by the former the operation should be preceded by a large enema.

The best plan of dilating the sphincters, in my opinion, is to first use graduated dilators up to the largest size, and then the thumb and finger or fingers of each hand, as described in the chapter devoted to that subject. After the sphincters have been properly divulsed, the fissure should be thoroughly examined, and if the surrounding mucous membrane is found at all thickened or undermined, it should be raised with tissue forceps and pared off. The introduction of Nott's vaginal speculum may be of material assistance in doing this part of the work, particularly if the ulcer be one of the oval or round variety. A blunt hook should next be drawn down through the track of the fissure to its lower extremity, where all the tissue caught upon the end of the instrument, including the

little tumor formed there, should be removed. The rectum should now be sponged out with a hot carbolic or bichloride solution, the ulcer and any abrasions which may have been made by the stretching dusted with iodoform, and a fold of cotton applied.



FIG. 58. Long blunt hook.

Little after-treatment is required. Hot-water applications should be principally relied upon for the relief of pain and soreness. An opium and belladonna suppository may be occasionally inserted if the rectum seems irritable, and a salicylic acid ointment prescribed to conclude the treatment. The time for the first movement of the bowels depends upon the circumstances of the case. If the dilatation has been carried pretty far, the parts quite sore and the patient suffers no inconvenience from the want of an action, three or four days may elapse before obtaining one. Some surgeons secure a movement every day, but this seems to be an unnecessary disturbance of the parts, which, from the very nature of what has been done, call for rest.

It is advised by some authorities that an incision be made through the bottom of a fissure, after the sphincters have been dilated, to insure a cure; but as experience shows that dilatation alone is sufficient, why do more? The slight amount of dilatation incidental to the introduction of a speculum has in several instances been followed by a complete disappearance of the disease. In cases of babes, in whom the sphincters are not as yet well developed, the introduction of the lubricated forefinger is successfully practiced for the relief of fissure.



FIG. 59. Tissue forceps.

Boyer was the first to point out that a deep incision through the bed of a fissure is immediately followed by a complete subsidence of all the symptoms, and recommended that the incision should extend entirely through the muscle. Duputren called attention to the fact that it is not necessary to divide more than a few fibers of the muscle

or muscles to obtain the same result. Since these discoveries, many have the impression that the surest way to cure a fissure is by incision. If for any reason it is considered dangerous to give the patient an anæsthetic, and palliative measures prove unavailing, I would not hesitate to produce local anæsthesia by the application of carbolic acid or the injection of cocaine, and make a free incision.

The irritable oval or round ulcer, which I am inclined to think is a degenerated form of a true fissure, may not on account of its width be sufficiently destroyed by dilatation alone to present a complete granulating surface. Should any smooth or unbroken places be found after the sphincters have been dilated, when handling cases of this kind, the ulcer should be either curetted or such places stabbed or scarified after the edges, which are usually undermined, have been pared off.

Since these pages were put in type, nearly one year ago, I have fully concluded that the quickest and most satisfactory way of treating fissure without the dilatation of the sphincters is to use the knife at the very start. After the application of a strong solution of cocaine and the insertion of a speculum, a pledget of cotton dripping with pure carbolic acid is laid in the track and allowed to remain for a few moments, as mentioned on page 132. A very sharp-pointed curved bistoury is then gently drawn through the bottom of the track two or three times, or sufficiently often to be sure that a little depth has been reached. In concluding I usually press the point of the knife into the tissue more firmly in places, as if to make punctures. The patient need not know that a knife has been used. Any acute pain which may be felt during the incision or at the time the stabs are made, and also the presence of blood afterward, may be explained by stating that it is necessary to scratch the surface of the ulcer to induce it to heal. The after-treatment is the same as that recommended for fissure when local applications alone are depended upon to make the ulcer tolerant.

RECTAL STRICTURE.

A STRICTURE of the rectum may be defined as a morbid contraction of some particular part of the rectal passage due to the formation of adventitious tissue. This definition excludes spasmodic stricture, the occurrence of which is doubtful, and congenital malformations, or rectal atresias.

The organized tissue constituting a rectal stricture is formed in one of two ways, which serves to divide strictures into two general classes: (1) Those produced by the cicatrization of ulcers, wounds abscesses, etc., called cicatricial; (2) those produced by an increase in tissue or a thickening of the rectal wall as the result of a deposit, or plastic infiltration, called neoplastic.

In the first class the stricture begins, with few exceptions, as an ulceration, and through efforts at repair cicatricial bands are thrown out, producing a narrowing or a contraction in the lumen of the bowel, either in places or throughout the circumference.

In the second class the stricture begins as a deposit of new material (neoplasm) in the rectal wall, producing a thickening at the place of deposit, and a consequent diminution in the size of the passage. In this class ulceration may or may not take place, secondarily, both above and below the strictured part.

If a stricture occupies the entire circumference of the bowel, it is called annular; if only one-half of the circumference, semilunar; if less than one-half, falciform.

With reference to the preëxisting constitutional condition, strictures are divided into the following three varieties: Non-syphilitic, syphilitic, and cancerous.

For the non-syphilitic variety, three causes are usually given, dysentery, inflammation, and traumatism. To the first of these Dr. Mathews interposes an objection, claiming that both experience and statistics show that ulceration is seldom and stricture is never produced by dysentery. He very reasonably concludes that if

dysentery is a common cause of stricture, we would be frequently called upon to treat the ulceration which must necessarily precede the stricture, as dysentery is a very prevalent disease, particularly in warm climates. He also states that Professor John A. Ouchterloney, a distinguished pathologist and teacher, who, during the civil war, made post-mortem examinations upon hundreds of subjects where the cause of death was dysentery, cannot remember of having ever seen a stricture of the rectum as the result of dysentery. In further support of his position, Dr. Mathews says that if dysentery is a common cause of stricture, as asserted by many, the latter disease would often be found among the veterans of war, but that the pension records are singularly silent upon this point.

As to the other two causes, inflammation and traumatism, it may be said that the former is implied by the latter, and also that inflammatory action is more or less concerned in the formation of all strictures. Probably what is meant by naming inflammation as a cause of stricture, is acute inflammation due to traumatism, as operations on hemorrhoids, the action of caustics, etc. An injury or a lesion produced by anything which excites a high degree of inflammatory action and destroys tissue may, in the process of healing, result in stricture.

The simple or non-syphilitic stricture always begins on the interior of the bowel either by ulceration or by acute inflammation; whereas the syphilitic and cancerous varieties more often begin in the substance of the bowel by the deposition of new material, which becomes firmly organized.

The disposition of syphilis and cancer to begin their ravages by deposits rather than disintegration of tissue, leads me to believe that most strictures produced by them begin as a deposit, and that the deposit is so superficial and of such a character in those cases which seem to begin by ulceration, that it breaks down early, and ulceration follows. In this class, of course, the tissue forming the stricture is produced by cicatrization.

To avoid confusion and furnish in a concise form an idea of the conditions producing stricture, as found associated with each variety, the following simplified table is given:

Non-syphilitic.....	{ Ulcerative
	{ Traumatic

Syphilitic	{ Ulcerative
	{ Neoplastic
Cancerous	{ Ulcerative
	{ Neoplastic

Traumatic is used in the table to represent stricture resulting from operations, the action of caustics, invagination of the bowel, etc., to which reference has already been made. Strictures of this class are not preceded by ulceration and cannot be properly classified as ulcerative, although cicatricial tissue forms the stricture in both classes. Strictures produced by the cicatrization of deep abscesses, wounds or injuries to the rectum, without the intervention of ulceration, will receive no further attention, for the reason that we are considering stricture as an idiopathic and not as a traumatic disease.

The percentage of strictures due to syphilis has been variously estimated and quite warmly discussed. Some hold that over fifty per cent of all cases originate from syphilis, while others claim that not more than six or eight per cent can be traced to that cause. My opportunities for studying stricture and its causes have not been sufficient to warrant me in forming a conclusion upon a question in which there is such a diversity of opinion.

SYMPTOMS.

The early symptoms of stricture are usually obscure and often entirely wanting. Particularly may this be said of the neoplastic form, the first sign of which will most likely be the obstruction, as the following case will illustrate:—

Mr. C., aged thirty-three, married, applied for the treatment of hemorrhoids. He stated that the only inconvenience suffered was from constipation; that the piles did not come out and were never very sore, but that he had seen a little bloody mucus at times, and had a constant desire to go to stool, a free evacuation and relief being only obtained after the feces were made liquid by the injection of warm water.

On the introduction of the finger I found about one inch and a half from the anus an annular stricture which almost entirely occluded the bowel. Closer inquiry elicited the fact that the stools

were not much larger in circumference than a lead pencil. He had noticed the trouble not more than two months before. There was a previous history of chancre at the age of nineteen, with no constitutional symptoms. No condylomatous growths were found about the anus, and the mucous membrane below the stricture seemed to be perfectly smooth and unbroken.

When the stricture is cicatricial and proceeds from ulceration, the signs of ulceration will at first mask those of the stricture, and the patient will complain of morning diarrhea, gastric and intestinal disturbance, wandering pains, and impairment of the general health. If the ulceration has extended downward over the surface of the internal sphincter, there will be a constant discharge at the anus, producing excoriations and warty growths. A case illustrative of this class of strictures is given in the chapter on "Rectal Ulcer," page 118.

After a stricture has advanced to the stage at which the bowels are not sufficiently evacuated, the fecal accumulation will soon

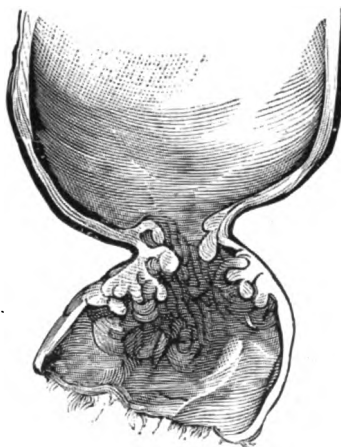


FIG. 60. Stricture of the rectum.
(After D. Hays Agnew.)

produce the usual symptoms of intestinal obstruction. The transverse and descending parts of the colon become distended, tender to the touch, somewhat movable, and impart a dough-like feeling. The accumulation may disappear by an attack of diarrhea or the action of a brisk cathartic, only to reform in a short time, and all the symptoms thus continue until a climax is reached. Complete obstruction is preceded by fetid eructations, swelling and marked tenderness of the abdomen, visible intestinal commotion, and sometimes bloody passages.

After a short time, obstinate vomiting accompanied by vigorous intestinal peristalsis occurs, the patient becomes exhausted and unless relief be speedy, dies.

Acute or sudden obstruction sometimes happens, in cases of stricture, and may be one of the first intimations of the existence of

serious disease. This is more apt to occur, it is said, when the stricture is situated high in the rectum or at the junction of the rectum with the sigmoid flexure. It comes on with the usual signs of acute intestinal strangulation, and is believed to be caused by the lodgment of some indigestible substance in the opening of the stricture or to the collection of hardened feces above it.

"There is one important element in the obstruction due to stricture," says Kelsey, "which must not be forgotten. It will sometimes happen that fatal obstruction will occur even when, on post-mortem examination, the caliber of the stricture is found to be large enough to permit the passage of the finger, showing that the obstruction could not have been due merely to the contraction of the new growth."

As a result of the periodical accumulation of feces above the seat of constriction, extensive pathological changes sometimes take place in the walls of the bowel, during the progress of stricture, for some distance upward. These changes begin almost simultaneously with the first accumulation, by the dilatation of the bowel, and are at first manifested by alternate attacks of constipation and diarrhea. Their description and the manner in which they are effected are thus given in substance by Kelsey: After the accumulation has remained in contact with the bowel for a time, producing a certain amount of dilatation, it begins to act as a foreign body, setting up a catarrhal inflammation, by which sufficient fluid is poured out to soften the hardened mass, and a free evacuation takes place, only to be followed by a fresh accumulation and a repetition of the same process. In time the bowel becomes ulcerated, thinned in places and thickened in others, and greatly dilated. The dilatation may reach an enormous size, "and may ultimately result in a cul-de-sac or pouch, which will fill a large portion of the abdomen, and dip down below the point of constriction, and an ulceration in this pouch may result in its perforation and the establishment of a fistulous outlet for the feces."

DIAGNOSIS.

Stricture seldom occupies a position beyond the reach of the finger, and the finger is therefore an easy as well as a safe means of diagnosis. Of the seventy cases of stricture tabulated by Alling-

ham, ten of the number were found in men and sixty in women, showing a great predominance in the latter, and none were more than three inches above the rectal orifice.

To those who are not familiar with the normal condition and shape of the rectum, attention is called to the possibility of mistaking the upper posterior edge of the internal sphincter, behind which lies the cul-de-sac of the rectum, for a stricture. Such a mistake was made in this city a few years ago, the victim being a teacher of languages in one of the local colleges. An operation was performed by divulsion, the prostate gland bruised, and several weeks of useless suffering followed. The cause which led to the search for and the belief that a stricture existed in this case, was constipation due to rectal inertia.

When a stricture is situated high in the rectum, at the sigmoid junction or within the flexure, the confidence in diagnosis which is obtained by bringing the finger directly in contact with the affected part is lost, and the subjective symptoms, together with the history of the case, will have to be relied upon to form a conclusion. The use of bougies is both unsatisfactory and dangerous—unsatisfactory because their manipulation is made difficult by the compression of the sphincters, and dangerous because the force necessary to overcome such resistance and communicate the condition of the bowel above, is liable to produce a rupture.

The ribbon, or tape-like action, which at one time was thought to be a positive sign of stricture, is now recognized as only presumptive evidence. A flattening of the feces may be caused by an irritable or spasmodic sphincter. On the other hand, the occasional passage of a full-sized, properly-formed stool cannot be taken as an evidence that no stricture exists, for the reason that after the feces have passed through the opening of a stricture situated high in the rectum, they may re-form in the rectal pouch below the obstruction, and be passed in their normal shape, though they are likely to be more or less ill formed, or lumpy, and streaked with blood.

It is not always an easy matter to differentiate between malignant and non-malignant rectal stricture in their early stages. Both may be accompanied, after the period of ulceration, by tender condylomatous growths, or flaps of skin outside of the anus, bathed with an ichorous fluid. There is more odor to cancer at this period, a

greater disposition of the growth to break down and bleed, and a greater tendency to pain, which may become severe and unremitting in character as the disease advances. In those cases of stricture in which there is no breaking down of the growth, with its consequent ulceration, and other means fail to disclose the true nature of the disease, a small specimen should be put under the microscope and the question thus solved.

Some authors lay considerable stress upon the peculiar feeling imparted by cancer to the touch, yet say they are unable to describe just what that feeling is. It is spoken of as gritty or sand-like. I am sure that such a feeling is not always present in malignant stricture. In the case of a large carcinomatous growth of the rectum, which I examined at the instance of Dr. E. M. Weiss, of this city, the gritty feeling was absent. There was little or no pain except that caused by the fecal accumulation, nor were there any signs of ulceration or a breaking down of the growth. It not only included all of the coats of the rectum, but extended to the neighboring parts, and involved the uterus. The tendency of malignant disease to invade the surrounding parts, and the absence of a syphilitic history will distinguish it from syphilitic disease of the rectum, with which it is most likely to be confounded.

TREATMENT.

The treatment of stricture is mainly surgical. Constitutional treatment alone can accomplish nothing, but as an auxiliary it is often indispensable to the success of the operative, particularly in handling syphilitic cases. The general condition of a patient afflicted with stricture cannot be considered as ever being up to the normal, and a certain amount of internal treatment is always indicated; yet much harm may be done by inappropriate and over-medication. Mercury and iodide of potassium are the remedies in all cases of a specific character; but their indiscriminate use is not only unscientific but censurable as well.

The methods practiced for the relief of stricture are dilatation, incision, electrolysis and *racilage*, extirpation and colotomy.

Aside from extirpation and colotomy, which are called for only in otherwise hopeless cases, incision, I feel warranted in saying, is the only method worthy of recommendation.

Gradual dilatation in stricture where the rectal canal is contracted for some distance from an infiltration or inflammatory exudate, due to proctitis or periproctitis, is rational and appropriate; but for fibrous or organic stricture it is, at most, only temporizing, and often detrimental to the case.

Divulsion or forced dilatation alone in fibrous stricture is only mentioned to condemn it. Anyone who has ever handled a stricture knows that the tissue constituting one is firm and unyielding, and often about fourfold stronger than the normal tissue. Conceive a stricture to be annular and that force is applied to divulse it. As "no chain is stronger than its weakest link," it follows that the stricture will give way at its weakest place, or where there is the least resistance. Should the stricture occupy only a portion of the circumference of the bowel, as the semilunar or the falciform, it will be simply pushed to one side, and the rupture take place in the healthy structure. What is accomplished by such a procedure? A larger opening is temporarily made at the expense of the healthy or least affected part, and the unhealthy tissue, or that which it is desired to destroy, remains intact.



FIG. 61. Sargent's divulsor.

As an adjunct to the knife, however, divulsion may be sometimes advantageously employed after a stricture has been incised in two or more places, and when it is situated well below the peritoneal fold, or what is called by Kelsey the danger line. The deepest incision should then be made posteriorly so as to guide the main rent away from the anterior wall of the rectum, thus avoiding a rupture of the bladder in the male and the vagina in the female. The extent to which the peritoneum comes down over the rectum anteriorly varies with different subjects. In some it comes down to within two and one-half inches of the anus. In others not nearer than four inches. In a few instances it has been found to come down as low as one inch and a half. The average is about three or three and a half inches, or within a finger's length.

Under the treatment by incision, we have two operations from which to select, known as internal and external proctotomy. Each of these operations has its advocates, and each will be presented here in the language of its most distinguished American supporter.

Kelsey, of New York, favors the external operation, and says of both :—

“The operation of internal proctotomy consists in dividing the whole of the stricture tissue in the median line, either anteriorly or posteriorly. It is called internal because the incision is confined within the rectum and does not involve the sphincter, and it is generally performed with the knife in preference to the cautery or *écraseur*.

“Regarding this operation there is not very much to be said. It involves no new principle of treatment, and would seem to rank rather with the older procedures, such as nicking and dilatation, than as a substitute for colotomy. There have been many unpublished cases, especially in New York, and I should probably express the general feeling of the profession were I to say that it is not looked upon with very great favor. Though at first sight it might appear less serious than the external operation, it is probably the more dangerous of the two—the sphincter preventing the free discharge from the wound and increasing in this way the liability to pelvic inflammation. This muscle should at least be stretched as a primary step in the operation, and when possible, a large drainage tube should be left in. The danger of hæmorrhage is not very great when the incision is confined to the median line, but, should there be trouble from this cause, the advantage of a free external wound in controlling it will at once be manifest. When the cut is anterior as well as posterior, the anatomical relations must be borne in mind, lest the peritoneum in the female or the bladder in the male be wounded.

“External proctotomy involves not only the division of the stricture, but of all the parts below, including the anus. In performing this operation either the knife or the cautery may be used. Formerly I preferred the knife, and had one especially adapted for the purpose, which is shown in Fig. 82. It is simply the lithotomy knife of Blizard, made heavier in the back and at the handle, for with an ordinary bistoury there is great risk of breaking the blade

in the midst of the stricture tissue, which is often as hard as cartilage, and thus having an awkward accident. The blunt point on the end of the blade is a great convenience in passing the knife along the index finger, avoiding, as it does, all risk of wounding the operator.

"The best position for the patient is the lithotomy position, and the whole incision may be made at one stroke. The blade should be passed fairly through the stricture before the cutting is begun, then the stricture is divided completely, as near as possible in the median line posteriorly, and finally the incision is continued downward and outward, growing deeper as it approaches the perinæum, till all the soft parts are severed between the anus and the tip of the coccyx. In this way a large triangular wound is made, the apex being within the rectum, above the stricture, and the base at the skin, and all the stricture tissue is completely cut through.

"There will generally be a free gush of blood when the cut is made, and the rectum should at once be packed in the manner already described, without waiting to try any other method of stop-



FIG. 82. Proctotomy knife.

ping the bleeding. This is a precaution which should never be omitted.

"It was this hæmorrhage, and the trouble of removing the lint with which it was almost always necessary to stuff the rectum, which first led me to operate with the thermo-cautery, which I now greatly prefer. The bleeding is absolutely nothing, and the wound is dressed by its own eschar, thus saving much distress to the patient.

"This operation may be modified in various ways to fulfill any special indication. In extensive cancerous disease I have sometimes made two such cuts, and taken out a considerable mass of the growth between them, merely for the purpose of opening the canal.

"It may be asked, Why should so large an incision be made, and so much tissue be divided below the actual disease? The answer is simple. In the first place, this incision provides for free drainage and discharge in the most effectual of all ways, by furnishing a de-

pendent gutter-shaped opening which cannot become closed. This is better than any number of drainage tubes, and it is this alone which makes the external operation a safer one than the apparently slighter internal incision.

"In the second place, by this incision the sphincter is completely divided, and another great point is gained. The operation we are now considering, it should be remembered, is nothing less than a substitute for colotomy in the same class of severe cases for which that operation is generally considered the only relief. One point which is exceedingly well brought out by a study of these cases is the important part played by the sphincter muscle in the sufferings accompanying severe cases of stricture and ulceration, and the relief which may be obtained by its simple division without interference with the stricture itself.

"In one case of Verneuil's, for example, there was a stricture high up, and yet, under a mistaken diagnosis of spasmodic stricture at the anus, the sphincter was cut through with the galvano-cautery, while the real cause of the trouble was untouched, and yet there was entire relief from suffering. The same experience has been repeated often enough to establish the general principle that free division of the sphincter is not only a justifiable therapeutic measure for the relief of the pain attendant upon either benign or malignant stricture or ulceration, but is often the best means at the surgeon's command for allaying suffering.

"By the external operation, then, the obstruction is divided, and one great cause of suffering is abolished, and both are effected by the same stroke of the knife.

"The after-treatment of the incision is very simple. When the rectum has been tightly packed with picked lint, it will usually cause more or less uneasiness on the following day, unless the patient be under the influence of opium. For this reason, I generally remove enough of it on the following day to give the patient ease, and the remainder is allowed to remain until suppuration has commenced. It may usually all be picked out by the third or fourth day without causing any pain. The subsequent treatment of the incision itself consists wholly in cleanliness, which may be obtained by gently syringing the part with warm water and a little carbolic acid. No particular attention need be given to regulating the pas-

sages. The first one after the operation will often be the only comfortable one the patient has experienced for years, and unless there is some special reason for interference, they may be left entirely to nature."

A point to be remembered when doing external proctotomy is that by closely hugging the median line, the fibers of the external sphincter will not be divided, and the risk of incontinence thereby greatly reduced.

Mathews, of Louisville, Ky., favors the internal operation, and says of both:—

"I am very partial to incision or incisions for the relief of stricture of the rectum. Of the two operations recommended, internal and external posterior linear proctotomy, I much prefer the internal, recognizing at the same time that I differ from many distinguished authorities. It is urged for the external, which consists of not only going through the strictured surface, but also in dividing the sphincter muscle, etc., that it is all-important to get the necessary drainage. I do not think so, and if I did, I believe the ill effects of dividing the sphincters outweigh the matter of drainage. I cannot believe either that the internal incision is as dangerous as it is represented to be by some authors. In speaking of the two operations Van Hook says: '(1) Internal proctotomy leaves a wound exposed to infection without proper dressings or drainage, and should be regarded as dangerous. (2) External proctotomy is a valuable temporizing measure, giving free outlet to feces and pus, and allowing the patient to recuperate in general health so as to bear a radical operation.'

"In reply to this, I would say that it depends very much upon how the internal operation is done, whether it leaves the wound exposed to infection or not. There are many strictures found in the rectum which require a division of the fibrous structure only, and therefore, as none of the deep tissues are involved, it cannot be argued that the dressings or drainage are so absolutely necessary. Indeed, I am convinced, in dealing with stricture of the gut, that it is not often necessary to make this deep cut back to the sacrum at all. If such necessity arises, then I would concede that external proctotomy would be the better of the two operations. My plan for doing internal proctotomy is as follows:—

"I introduce a speculum of small caliber through the opening in the stricture, and stretch the structures to a moderate degree. I then secure the instrument, and, taking a long, sharp knife, I divide the constrictions of fibrous tissue down to a healthy base. This first cut is made in the median line; but often I am not content with one cut, therefore I make several, around the circumference of the gut. I then place a tampon, through which I have inserted a metallic tube for drainage and the escape of gases in the rectum. This tampon is aseptic, and usually dusted with powdered persulphate of iron. On the fourth day it is removed, and the rectum irrigated with a mercuric solution. If the operation is done effectively, I have never seen the necessity of employing a bougie afterward for the purpose of dilatation. Patients are averse to their use, and, in my opinion, they do not accomplish the good claimed for them. My objection to the external operation, although I have practiced it often, is that to divide the sphincters when all the tissues are in a diseased condition invites non-union, and incontinence is nearly certain to follow. The suggestion of Weir,—to confine the incision to the stricture, and then to drain the incision by a tube, brought out through the skin at the tip of the coccyx,—I do not think will accomplish the purpose in many cases; besides, it leaves a channel which may not heal. To divide the sphincters, and then employ three or four deep provisional wire sutures between the anus and the strictures, leaving them loose and stuffing the incision with charpie, after the manner of Kelsey, I think unwise. It is said that one great danger of the operation is septic periproctitis, but under antiseptic precautions the danger, in my opinion, is reduced to a minimum. In one case of malignant disease, in which I did the external operation, rapid sepsis took place, and the patient died in twenty-four hours. I do not think either the internal or external operation should be done for malignant growths, unless total, or nearly total, occlusion has taken place. In all cases of non-malignant stricture, syphilitic or simple, either the internal linear proctotomy of the French surgeons, or the external operation as practiced by many, is far more preferable, in my opinion, to either excision or colotomy, simply for the reason that these patients are seen at a late date, when constitutional infection exists, and we can expect but a palliative effect from either one of the operations."

EXTIRPATION.

The treatment of stricture by extirpation, or the removal of the entire growth, is seldom if ever justifiable in the non-malignant form of the disease; but for the cancerous variety, before the latter has invaded the surrounding parts, it is the only operation which can be performed with any hope of benefit. In benign stricture the disease *per se* is limited to the gut, and the only danger lies in the obstruction, which can be relieved by the milder operations without entailing upon the patient the additional risk of incontinence, a condition most sure to follow extirpation when the disease is situated low. In cancer, unless the growth be removed bodily, and that at an early stage, it will continue to extend and sooner or later contaminate the entire system. Under these circumstances it will be seen that any kind of an anus which may result is justifiable.

Extirpation is performed by first making a deep incision through the stricture posteriorly, which is carried to the tip of the coccyx, the same as is done in external proctotomy. The growth is then cut, or dissected out, and the divided end of the bowel above brought down and attached to that below. If the stricture be too high to be reached by the coccygeal cut, and the case urgent, the operation may be performed at a much higher level by cutting back alongside of the sacrum.

The treatment by extirpation is referred to by most writers as excision of the rectum. More recently an operation has been described under the name of resection of the rectum, which has for its object the removal of cancerous disease without interfering with the sphincters. It is performed by making an opening in the posterior wall of the pelvis, extending from opposite the third sacral foramen to the tip of the coccyx, the disease exposed, and that part of the rectum involved by it resected. The opposing ends of the bowels are then united by interrupted sutures or by the Murphy button, drainage provided for and the wound closed.

COLOTOMY.

When a non-malignant stricture is located above the reach of the finger, or in the movable part of the gut, which is very rare, or when the condition of the rectum is such that no operation of rea-

sonable safety can restore the natural route of the feces, colotomy is indicated. It is the last resort of surgery for the relief of pain and to prevent or overcome obstruction. While it may cure ulceration, it is only palliative in stricture, and should not therefore be undertaken as long as there is any prospect of relief by other means.

Like proctotomy, colotomy may be performed in either of two ways, each way taking its name from the region in which the opening is made into the colon; and each having its staunch supporters. When the operation is performed in the left lumbar region, it is called lumbar colotomy; when in the left inguinal region, inguinal colotomy. The chief advantage of the posterior operation is that it does not open the peritoneal cavity. Another advantage, though comparatively of minor importance, is that the gut shows less disposition to prolapse through the artificial anus after the posterior operation than it does after the anterior. The advantage of the anterior operation is that the inguinal position enables the patient to manage the discharges and attend to himself much better than he can when the opening is behind. The details of both operations are given in all works on general surgery.

NOTE.—Old persons, or those ranging in age from 60 to 70 years, stand operations for cancer better than younger ones, and there is a less likelihood to a return of the disease.

The proper way to diagnose cancer is by exclusion. The microscope has not proven reliable in all cases. The fragment of diseased tissue procured for examination may not contain cancer cells. Furthermore, cases have been pronounced cancer by microscopic examination which turned out to be otherwise. When a suspicious disease is found, the growth moveable and its upper limit can be reached, extirpation is indicated. The question of malignancy or non-malignancy should not be permitted to delay the operation.

RECTAL PROLAPSE.

Of rectal prolapse there are three varieties:—

1. Prolapse of the mucous membrane alone.
2. Prolapse of all the coats of the rectum, including, in the more severe forms of this variety, the peritoneum.
3. Prolapse of the upper, or movable, part of the rectum into the lower, which corresponds to invagination or intussusception in other parts of the canal.

The second and third varieties are rare, and the first as an uncomplicated disease is infrequent, but as an associate of internal hemorrhoids it is as common as the latter. When the hemorrhoids are cured the prolapse usually disappears.

It is natural for the mucous membrane at the lower end of the rectum, by its loose attachment to the muscular coat through the cellular layer, to roll down and become somewhat everted during the act of defecation. It is only when this condition becomes excessive and the protrusion so great that it does not return of its own accord, that it is called a prolapse and treatment required.

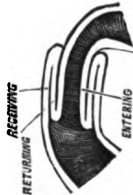
The conditions favorable to a prolapse of the mucous membrane of the rectum may be given, (1) as those which act mechanically either to draw or to force the membrane down, and (2) those which tend to weaken or relax the sphincters. Of those which draw the membrane down, hemorrhoids and polyps may be mentioned, while the weight of the pelvic organs and violent straining combine to force it down. Uncomplicated prolapse of the mucous membrane is most frequently found in children under four years of age, and occurs oftener in women than men. Its frequent occurrence in children is explained by the weak attachment of the mucous membrane in infancy and early childhood, the undeveloped state of the sphincters at that period of life, and the disposition of children to strain more than adults.

The most aggravated form of prolapse of the mucous membrane

alone seldom exceeds two inches in length. When the protrusion is longer, and uniform, or cylindroid in shape, other coats of the bowel will be found present in the mass, and possibly peritoneum in front. "In the peritoneal pouch thus formed," says Kelsey, "may be located coils of intestine, an ovary, or a part of the bladder."

The second variety of prolapse generally follows the first, but it may take place suddenly as the result of violent straining. As it is only an exaggerated form of the first, it may and sometimes does occur in children. After this variety has persisted for some time, the protruded portion of the bowel becomes more or less enlarged, or increased in size by an infiltration and thickening of its coats, and difficulty may be experienced in replacing it and retaining it after being replaced.

In the third variety of prolapse, the lower portion of the rectum remains in its normal position while the upper portion drops down into or descends through it, and thus becomes telescoped, or invaginated. The descent may or may not show outside the anus. In describing this variety, some writers drop the word prolapse and substitute invagination, including in their description the descent into or through the rectum of any part of the large or small intestine.



Third variety of prolapse. (Bryant.)

DIAGNOSIS.

The only disease with which the simple forms of rectal prolapse are likely to be confused is prolapsing internal hemorrhoids. With children, in whom we do not expect to find hemorrhoids, the diagnosis, of course, is easy; but with adults, in whom hemorrhoids are so common and prolapse uncommon, mistakes are frequently made. Anyone who has seen many cases of internal hemorrhoids can tell at one glance whether or not the protrusion is due to that cause. Hemorrhoids are always clearly distinguishable from the mucous membrane whether the tumors be large or small. If small they may be more or less concealed by the meeting of the mucous surfaces on the opposing sides of the bowel; but by drawing down the membrane while the patient extrudes the parts, the tumors can always be distinctly seen even in their earliest stage of development.

This leaves us to differentiate between the varieties. The patient

should be prepared for the examination of a prolapse in the same way as that recommended for the examination of internal hemorrhoids. An enema should be given and the prolapse brought down. If it be mucous membrane alone, the protrusion may show only on one side of the anus, on both or all around. If all around, it is likely to be irregular and show more on the sides than anteriorly and posteriorly. When all the coats descend, the entire circumference of the rectum will be represented, and the protrusion will be longer, more even, and more decided in all respects. A prolapse of the mucous membrane alone, has a tendency to return of its own accord or with little assistance, while that of all of the coats is disposed to remain out, is sometimes very difficult to return and is more apt to become strangulated.

A prolapse of the third variety is easily distinguished from that of the other two varieties. When this variety is incomplete, or does not show at the anus, a distinct sulcus may be felt, by inserting the finger into the rectum, at the lower or free extremity of the invaginated portion. When the prolapse is complete, or descends through the anus and appears outside the body, it will be found to have no attachment at the anus, as do the other two varieties. The immediate effect of an invagination is not to entirely occlude the bowel and prevent the passage of feces. The feces may be forced down through the constriction by the healthy bowel above, but there is danger of agglutination of the walls of the bowel which lie in contact with each other, followed by sloughing of the invaginated portion and a stricture in healing.

TREATMENT.

The treatment of rectal prolapse is both palliative and curative. Of the palliative treatment little need be said. If the prolapse be recent or an old one in an aggravated condition, the first step in the treatment will be to effect reduction. As the rules to be followed in effecting reduction are essentially the same as those given for the reduction of strangulated hemorrhoids, page 30, a repetition of such rules here is deemed unnecessary. The behavior of an ordinary uncomplicated case of rectal prolapse is very much the same as that of prolapsing hemorrhoids. Both are aggravated by an engorgement of the rectal vessels, both are manifested in periodical attacks, and are relieved by the same internal treatment.

After a prolapse has been reduced, means should be taken to prevent its immediate recurrence. When there is a strong tendency for the congested and thickened bowel to protrude or escape through the sphincters, a cotton compress or a suitable pad should be applied, and all straining interdicted. The treatment should then be directed toward relieving the rectal vessels of their engorgement, just the same as in cases of piles. Internally, small doses of sulphur or any other remedy which is thought will improve the visceral venous circulation, may be given. Locally, astringent injections and anodyne suppositories are of value. Of the most suitable astringents, tannin, alum, krameria and pinus canadensis may be mentioned. As adjuvants, hamamelis and hydrastis should not be overlooked. It may be necessary to confine the bowels for a time, and to permit them to move only after the feces have been made liquid by an enema of hot borax or slippery elm water. Hot douching, when it can be consistently employed, is of benefit for the relief of venous engorgement and irritability of the mucous membrane.

When there is much danger of a recurrence of the prolapse at the time of the first movement after reduction, it has been advised that one of the buttocks be drawn to one side during the motion, or that the evacuation be allowed to take place with the patient lying on the side. Dr. S. D. Powell, of New York, recommends that the buttocks be strapped together with two strips of adhesive plaster, and that the patient, either adult or child, be permitted to defecate with these in position. The strips are then to be removed, the patient washed and new strips applied. Adults troubled with prolapse should not assume the squatting attitude for the purpose of having a stool, nor should children be allowed to use the chamber.

It sometimes happens in mild, recent cases of a prolapse of the mucous membrane alone, when the protrusion is not returned shortly after its appearance, that the submucous tissue becomes so densely infiltrated that reduction cannot be effected at all, and should not be undertaken. The protrusion in cases of this kind looks œdematous or like an ordinary swelling, and should be treated as such. No danger need be feared from strangulation unless the sphincter should show an unusual degree of irritability. Irritability of the sphincter may be overcome by the use of anodyne suppositories and the condition of the circulation greatly improved by warm or

hot applications. After the engorgement of the rectal vessels has subsided and the infiltration has been absorbed, the prolapse will disappear of its own accord, sometimes leaving a slightly thickened, fringe-like projection of the mucous membrane at the verge of the anus. The prolapse in these cases is more apt to occur on one side than both, and produces a feeling very much like the formation of an external pile, though the pain is never as severe as that caused by thrombotic piles. If hot applications do not relieve, the ice bag may be substituted. Ice should be cautiously used, however, in all cases of rectal prolapse in which there is any danger of producing sphacelation.

Reduction of the second and third varieties of rectal prolapse should always be effected at the earliest moment, lest the opportunity for subverting a possible serious complication be lost. As acute prolapse is always brought on or preceded by a fullness of the rectal vessels, the aggravated condition which must necessarily follow a severe form of this accident when left to itself is apparent. The exposure of the internal surface of the bowel to external influences invites the blood to the part, the dependent position of the gut retards, and its constriction by the sphincters above obstructs the return flow. As a result, the protrusion swells, and sometimes reaches an enormous size, as large as the foetal head. Inflammation supervenes in some instances, and strangulation in others. Reduction at this time would be most difficult to accomplish even under the most profound anæsthesia, and the thickened bowel equally as difficult to keep in place. If the mass be returned in an inflamed condition, the inflammation may extend with fatal results, and it is deemed safer, in such cases, to make local applications until the acute symptoms have subsided. If the mass be returned while in a state of strangulation with a circular slough, cicatricial stricture is inevitable. Molliere recommends excision of the entire protrusion, in the event of circular slough, rather than leave the case to nature.

When a prolapse of the third variety is incomplete, or does not show at the anus, reduction may be effected by taxis, as in the other forms of the accident, if the invaginated part of the gut can be reached by the finger, otherwise copious injections of warm water or inflation with a bellows, while the hips are elevated, may succeed in dislodging the entanglement. If the displacement has existed

for any length of time and there are evidences of agglutination of the walls of the bowel, all efforts to relieve the invagination will be futile, and the case must be left to nature. Should the constriction be sufficiently severe, the included portions soon become gangrenous and slough away, restoring the lumen of the bowel and leaving a circular cicatrix. The cicatrix thus left may subsequently develop into a stricture, which, from its high or inaccessible position, may be more surely fatal than the condition from which it arose.

Much should depend upon the inverted position of the body in relieving an invaginated condition of the bowel. Prolapse has been reduced in children simply by grasping the child by its feet and shaking it with its head down.

CURATIVE METHODS.

The methods employed for the cure of prolapse are, cauterization, excision, injection, and proctectomy.

Formerly, cauterization was regarded as being the most safe and effectual method of treatment, and is still looked upon by some with favor. Both the actual and potential cauteries were used, the actual in the adult and the potential mostly in children.

The method of using the actual cautery is to apply the sharp point of the heated iron (Paquelin's) to the mucous membrane at a distance of about three inches from the anus, and draw a line down to the muco-cutaneous junction or farther, the iron being applied lightly at the beginning of the line and made to burn more deeply as it approaches and passes over the sphincter muscles. From three to six lines are made in all, which are distributed around the circumference of the bowel in such a manner as thought will be most effective. Should the sphincters be very weak, or lacking in contractile power, Allingham burns entirely through both muscles at two points, the one opposite to the other.

The method of using the potential cautery is to dip the point of a stick in the caustic preferred, and draw lines on the mucous membrane in a similar manner to that of the cautery iron, or to use a trough-shaped clamp by which the caustic may be held for a time in contact with the part to be destroyed, and thus a more powerful effect produced. The caustics which have been used for

this purpose are nitric acid, sulphuric acid, potassa, potassa cum calce, and chromic acid.

In children in whom palliative measures have failed, Kelsey speaks favorably of applying fuming nitric acid all over the mucous surface of the prolapsed part, after the surface has been carefully wiped off with a towel or soft sponge. Mathews says if he were restricted to the use of one local application for a simple prolapse of the rectum, he would take carbolic acid, although he deprecates the use of any strong acid in these cases. I do not think that carbolic acid would produce the cicatricial contraction which follows the action of the harsher caustics. If I were to attempt to cure a prolapse with the potential cautery, I would make linear injections of carbolic acid into the mucous membrane, the effect of which, aside from the slough, would be to produce adhesions, I am led to believe, rather than circular contraction.

EXCISION.

Under the treatment by excision is usually described an operation by which the prolapsed part of the bowel is amputated and the stump closed by sutures. As excision is practiced in both the clamp and cautery and the ligature operations, all three operations properly speaking belong to the treatment by excision, the only difference being in the management of the stump.

The treatment of prolapse by the clamp and cautery is generally sanctioned by those who advocate that method for the cure of hemorrhoids, and the operation is in all respects performed in the same way. The clamp and cautery method is admitted by Kelsey to be better adapted to cases of prolapse than to hemorrhoids; the mass, being larger, is more readily clamped and cut off, preparatory to cauterizing the stump.

The treatment by the ligature is, naturally enough, preferred by those who favor the ligature method for the removal of hemorrhoids, and the operation is performed essentially in the same way. After the prolapse has been brought down, the parts shaved, if necessary, and washed with a bichloride solution (1 to 3000), a section of the prolapsed membrane is caught up with a clamp forcep, transfixed at the point of removal with a double ligatured needle, strangulated by tying on each side, and cut off close to the thread.

This is repeated sufficiently often to remove all of the redundant tissue. The part is then dusted with iodoform and pushed inside the rectum.

The treatment by immediate excision and suturing corresponds, though not in severity, to the circular excision, or Whitehead's operation for the removal of hemorrhoids. While Whitehead's operation is the most heroic method practiced for the eradication of hemorrhoids, immediate excision for the cure of prolapse is less severe than either the clamp and cautery or the ligature operation. In Whitehead's operation, after the sphincters have been forcibly stretched, the mucous membrane is picked up with tissue forceps, divided all around at or near its junction with the skin, separated from its attachments for a distance of an inch upward or above the location of the piles, and then, hanging loosely in the rectum with the piles attached, it is excised, cutting only a moderate portion at a time, and securing the bleeding vessels by torsion. As soon as the vessels have been secured, the cut edge of the healthy mucous membrane above is brought down and attached by silk sutures to the integument below.

Whitehead's operation is described here for the purpose of calling attention to a fact which does not seem to be generally known, and which was omitted when considering the subject of hemorrhoids, viz.: That hemorrhoids and all the large vessels are confined to and imbedded in the mucous membrane; that the mucous membrane, being loosely attached to the muscular coat of the bowel through the cellular layer, is very mobile and easily separated, and that by peeling it off or dissecting it up for a distance of an inch (the hemorrhoidal inch) and excising it at that point, not only are all of the hemorrhoids bodily removed but the entire plexus of vessels as well.

In the treatment of prolapse by immediate excision of course no dissections are necessary, and the part to be removed being wholly on the outside and easy to get at is readily cut off. When a prolapse is of the first variety and confined to one side of the rectum, any of the radical operations named may be performed without general anæsthesia or the dilatation of the sphincters. In mild recent cases of prolapse, or those in which there is an infiltrated condition of the mucous membrane just above its junction with the

skin, I wait until most of the infiltration has been absorbed, and then remove the thickened fold left behind with the scissors, the same as if it were an external hemorrhoid. In fact, I have not as yet been able to ascertain whether this form of prolapse is or is not brought on by a rupture of some of the anastomosing branches of the middle hemorrhoidal veins. In a case which I recently treated in the manner just described, there was a history of venous extravasation. The patient stated that his family physician had evacuated two clots by incision, which afforded considerable relief. In a previous case the protrusion showed no evidence of imprisoned clots; but there were two or three small clots, in size no larger than a wheat grain, uncovered by the excision. If this form of prolapse is caused by a rupture of some of the smaller veins, the extravasation is usually so far below the surface that it cannot be distinctly seen, and is rather quickly absorbed.

What has been said thus far in relation to the treatment of prolapse is intended only for the relief of the simpler forms of the disease, or those of the first variety. When all the coats of the bowel are involved, and possibly the peritoneum in front, excision as practiced by Dr. Charles K. Briddon, of New York, is to be preferred. In his operation, a transverse incision is made through the muscular membrane on the anterior aspect of the prolapsed gut at a point a little below the verge of the anus. The dissection is then continued until the peritoneal pouch of Douglas is reached, the hemorrhage being checked with clamps. The peritoneal cavity is then closed off by uniting the two opposing serous surfaces by Lembert sutures of fine catgut, above the line of division. The prolapsed portion of the rectum is then ligated *en masse* with an elastic ligature and cut away with a few sweeps of the scalpel. The approximal end of the gut is then sutured with silk to the margin of the anus. The field of the operation is kept constantly irrigated with Thiersch's solution, and all bleeding vessels secured by ligatures.

TREATMENT BY INJECTION.

M. Emile Vidal, of Paris, was the first to call attention to the propriety and efficacy of treating prolapse by hypodermic injections. In a paper read before the French Academy of Medicine, in 1879, he reported three cases successfully treated by this method. The

preparation used was Bonjean's ergotine, fifteen grains, and cherry-laurel water seventy-five minims. The point of the needle was inserted one-fifth of an inch from the verge of the anus, and from ten to twelve drops of the preparation injected. Acute pain always followed, and frequently spasm of the neck of the bladder and retention of urine. In no instance, the report says, did inflammation supervene or an abscess form.

Dr. Mathews reports two cases treated by himself by means of ergotine injections, in one of which an abscess occurred and in the other local inflammation was excited. In neither case was a cure effected. He states that no acute pain, spasm of the sphincter or retention of urine followed any of his injections, and ascribes their absence to the fact that he avoided the muscular tissue when operating.

With the ingenuity possessed by Vidal, it is to be regretted that he did not make his injections a little higher, confine them to the submucous, or cellular structure, and use carbolic acid instead of ergotine. Kelsey was probably the first to use carbolic acid in the treatment of prolapse by injection, and says the idea of using the remedy for that purpose came naturally from his trials of it in hemorrhoids. He reports cures from it but does not give us much of an idea of the exact manner through which they were obtained. The rationale of the treatment, the proper place of making the injections, and the easiest way to make them are certainly of much importance to the beginner.

The object to be accomplished in the treatment of prolapse by injection is to procure adhesion of the mucous membrane at or near the upper margin of the internal sphincter, by exciting a mild inflammatory action in the cellular structure of the bowel. For the purpose of producing these adhesions, we have as yet found nothing equal to carbolic acid. The quantity of carbolic acid to be used should be from eight to ten minims of a ten per cent solution, though both the quantity and strength may be varied to suit the tolerance of the case. Forty minims of carbolic acid to three drachms each of distilled water and glycerine make an eligible solution.

As the proper place to procure the adhesions is around the upper edge of the internal sphincter, the needle need not be inserted nearer the anus than one-half or three-fourths of an inch. The injections

may be made while the membrane is prolapsed or through the slot of a speculum. In uncomplicated prolapse it is preferable as a rule to use a speculum. I am prepared to believe that any case of prolapse of the mucous membrane alone can be permanently cured by the injection method,* provided a sufficient amount of ingenuity is exercised. The only exception which I can name is in cases of extreme relaxation of the sphincters, for which proctectomy is more suitable.

My meaning of ingenuity here will probably be better understood by giving an illustration:—

Mrs. T., aged about forty, had suffered many years from what she took to be piles. An inspection showed a large protrusion on one side of the anus which looked very much like an inflated chicken's craw, except more bluish in color. Two large papillæ which seemed to be the relics of piles, held the protrusion down near both extremities. Below these and near the middle of the protrusion was a still larger papilla, its transverse diameter being about one-half of an inch. I exhibited a desire to remove the two small papillæ with the scissors. The lady protested, saying that she understood I made cures without cutting. I then injected a few drops of the solution recommended for piles into and beneath the bases of each of the smaller papillæ, and returned all within the bowel. This had the effect not only of disposing of the two smaller growths by sloughing, but of drawing up the protrusion at both extremities, so that it now appeared as a piece of drapery, with the large papilla attached to the most dependent part. The large papilla was then treated as were the two smaller, and results awaited. After sloughing occurred, two or three pieces of thick, calloused mucous membrane, which formed a part of the base of the large papilla, were found loosely attached, and were removed with the scissors without the patient's knowledge. The only part of the prolapse observable at this time was a slight protrusion just above the verge of the anus and below the attachment of the large papilla, and this appeared to be due more to the swelling from the injection than to the original condition. The treatment was concluded by injecting a ten per cent solution of carbolic acid, to which a little borax and salicylic acid had been added, in two places beneath the mucous membrane at the upper edge of the internal sphincter. All

*Unless the mucous membrane should be considerably thickened, the sphincters tight, with a tendency to spasm, and possibly a small painful ulcer be present; then dilatation, excision and suturing would be the proper treatment.

signs of a prolapse soon disappeared, and the cure seems as perfect to-day, three years since, as if excision had been practiced.

The fact that prolapse never remains after the removal of hemorrhoids by injection, and the fact that a cure was effected in the case just mentioned by treating the papillæ the same as if they were hemorrhoids, are sufficient to lead us to believe that any case of simple prolapse might be successfully treated by producing sloughs of the mucous membrane, by means of injections, at or near the upper edge of the internal sphincter. It is peculiar to the injection of a fifty per cent solution of carbolic acid into hemorrhoids, or to the same strength of solution into and beneath the mucous membrane, that it tightens and seems to permanently take up a laxity of the membrane, without any apparent lessening of the caliber of the gut. It is also peculiar to the treatment and cure of internal hemorrhoids by injection, that no cicatrix, cicatricial tissue or contraction results, unless the operation has been extensive, involving both sides, and an active inflammation has been excited by extraneous causes, giving rise to an inflammatory exudate.

PROCTECTOMY.

In the *Annals of Surgery* for April, 1890, Dr. John B. Roberts, of Philadelphia, describes an operation for the relief of complete prolapse of the rectum, which he calls posterior proctectomy, and which was designed to meet cases of extreme relaxation of the sphincter muscles. His operation consists in removing from one inch to one inch and a half of the sphincters posteriorly, together with about three inches of a V-shaped segment of the posterior wall of the bowel. It is performed by first making an incision in the median line of the perineum near the point of the coccyx sufficiently deep and long to admit the end of the finger, which is inserted and the cellular connections posterior to the rectum broken up, in a manner similar to that adopted in excision of the lower end of the rectum for carcinoma. The sphincters are then divided in two places, one incision being about one-half of an inch to the right and the other the same distance to the left of the median line. The two incisions are made to converge after passing through the sphincters and to terminate in the perineal cut. The triangular piece of tissue, consisting of skin, subcutaneous cellular tissue and an inch of the

sphincter muscles, now only attached above, is excised, and the scissors used to remove a triangular piece of the posterior wall of the rectum for a distance of about three inches up. Catgut ligatures are used to control the hemorrhage, but knotted silk sutures for closing the intra-rectal wound down to the verge of the anus. A rubber drainage tube is then introduced into the space between the rectum and the sacrum, and the wound leading backward from the anus to the coccyx closed by numerous shotted-wire sutures carried deeply through the structures by means of a strong curved perineum needle.

DISEASE IN THE SIGMOID FLEXURE.

IN our works on anatomy, we are informed that the large intestine is that part of the alimentary tract which extends from the termination of the ileum to the anus, and is divided into three parts, the cæcum, colon and the rectum; that the colon is divided into four parts, the ascending, transverse, descending and the sigmoid flexure; that the sigmoid flexure is the narrowest, or most constricted part of the colon, is situated in the left iliac fossa, curves at first upwards, then descends vertically to one or the other side, like the letter S, and forms the connecting link between the two more dilatable parts of the large intestine, the descending part of the colon and the rectum.

From the size, shape and position of the sigmoid flexure, it will be seen that it acts to delay or check the rapid descent of the fecal mass, and from consequent pressure and friction, is much more liable to become diseased than any portion of the canal in proximity either above or below.

With the exception of what has been said concerning the occasional appearance of syphilis and cancer in the sigmoid flexure, we have little or no literature touching upon disease in this part of the alimentary tract except that recently produced by Professor Matthews, of Louisville, Ky., who, in his book on "Diseases of the Rectum, Anus and Sigmoid Flexure," devotes forty pages to the subject, showing that disease in the flexure is more common than is generally supposed, and is responsible for much that is usually attributed to other pathological conditions. He says: "Many cases of diarrhœa or dysentery (?) I am certain, would find an explanation if the sigmoid flexure was searched. Indeed, I have treated many cases and carried them to a full convalescence that had 'gone the rounds' for chronic diarrhœa or dysentery. In all such cases I would suggest that the flexure be explored and treated, and many will clear up. The manner of

treatment is the same, in a general way, as that of simple inflammation of the gut, with the addition of a stimulating injection first. One of the best is a weak solution of nitrate of silver, say five grains to the ounce of water, deposited in the flexure, and afterwards followed with injections of fluid hydrastis or *Pinus canadensis*, diluted four parts with water, and then the use of the oil preparation as already prescribed."

The oil preparation referred to consists of iodoform ʒj, sub-nitrate of bismuth ʒij, and sweet almond oil Oj. Mix, shake well, and inject one ounce into the flexure at bedtime, using a Wales' bougie.

The pathological conditions which may affect the flexure, as enumerated by Professor Mathews, are: "1. Congestion. 2. Inflammation. 3. Simple ulceration. 4. Specific ulceration (syphilis). 5. Malignant ulceration or growths. 6. Stricture (either malignant or non-malignant). 7. The receptacle of foreign bodies causing disease. 8. Tubercular ulceration." Of these the first three will be briefly noticed.

CONGESTION.—This, according to the professor's description, is essentially a catarrhal condition. Large quantities of mucus are secreted and discharged, some patients throwing off as much as six ounces in one day. There may be some reflected symptoms, and pain in the abdomen. Freeing the bowels with aperients, douching the flexure with large quantities of hot water, and, if need be, local applications of fluid hydrastis in full dilution, constitute the treatment in this stage.

INFLAMMATION.—Here the symptoms are all aggravated, and the cure proportionately difficult. The reflex symptoms are many, the most marked being pain in the back, and colicky pains in the stomach and bowels. There is often circumscribed pain in left inguinal region, a great amount of flatus, diarrhœa, diarrhœa sometimes alternating with constipation and straining at stool, although it is stated that most pain occurs just before stool, caused by the passage of feces through the inflamed part. The same general plan of treatment is to be pursued as in the first stage, with the addition of a more restricted diet, more decided rest, and, if constipation supervenes, applications to the flexure of the almond oil preparation; purgatives in this stage being contraindicated.

SIMPLE ULCERATION.—The symptoms of the ulcerative stage are not wholly unlike those of ulceration of the rectum, but the condition represented is much more serious, and the disease being located higher and less accessible is by far more difficult to cure. The discharge, formerly mucus, is now muco-purulent and bloody; the pain then slight, now severe; the reflexes in the beginning were mild, but are now determined; the actions infrequent, now frequent, and the bowel never feels emptied. Digestion is imperfect, uneasiness constantly felt in the abdomen, all the secretions become more or less vitiated, and the patient shows unmistakable signs of an exhausting disease.

While ulceration in the sigmoid flexure and that in the rectum have many symptoms in common, differentiation between the two diseases is easy. By inserting the finger into the rectum, if the disease be in the flexure, the mucous membrane will be found unbroken, and the parts, soft, pliable and yielding, although upon withdrawal the finger may be seen smeared with muco-purulent matter and tinged with blood. The introduction of a speculum reveals nothing more. When ulceration exists in the flexure, there will always be more or less localized soreness or tenderness on pressure.

The method of arriving at a conclusion when disease is suspected, or in differentiating it when it is known to exist in the sigmoid flexure, is by exclusion. The history of the case and the concomitant symptoms will have much to do with clearing up the diagnosis. Professor Mathews is emphatic in the statement that the sigmoid flexure is the seat of fecal impaction, and not the rectum, as is the general impression; that the flexure is a common seat of disease, and that "it is a difficult thing to make out a tumor in that locality, be it malignant, non-malignant, or an impaction." His method both of exploring and medicating the flexure is to introduce into the rectum as far as it will go a No. 5 or 8 Wales' bougie attached to a Davidson syringe. A bulbful of hot water is then forced through the bougie for the purpose of distending the bowel in front of the instrument while gentle pressure is made from behind. By careful manipulation the bougie may be easily passed into the flexure and, if disease be there, oversensitiveness or pain will be complained of. Upon withdrawal, if the dis-

ease has advanced to the stage of ulceration, the end of the instrument may be found covered with a "viscid, glairy mucus containing pus." The principal remedies used are fluid hydrastis (non-alcoholic) diluted 1 to 8, pinus canadensis 1 to 4, and the almond oil preparation as already mentioned.

CONDYLOMATA.

CONDYLOMA, from *kondulos*, Gr., a "knot," or "tubercle," may be applied to any small tumor, flap, tab of flesh or wart-like excrescence about the anus, whether of syphilitic or non-syphilitic origin. Some writers prefer to limit the use of the term to non-syphilitic growths, but it seems less liable to cause confusion to use it in a generic sense, and to apply it to any kind of a formation consisting of a hypertrophy of the skin or of the skin and mucous membrane together, caused by localized inflammation or irritation.

A cutaneous tag as a relic of an external hemorrhoid, after the latter has lost its identity and become dense in structure, is properly a condyloma; also the little tumor commonly found at the lower extremity of a fissure. Certain kinds of condylomata are pathognomonic of ulceration and other serious changes going on above, the discharge at the anus producing these fleshy tags.

Condylomata are most frequently found in connection with internal hemorrhoids, and sometimes form little table-like projections upon which the hemorrhoidal tumors extend and partially protrude. Attention was called to the frequency of these formations when considering the subject of external hemorrhoids, and to the fact that they are commonly called external piles, as are most all external, or anal growths. Mention was also made at that time of the best method of their removal, which is by immediate excision, and compression. What I mean by immediate excision is excision without the intervention of a ligature or clamp.

In addition to what has already been said concerning the removal of external growths by immediate excision, I desire here to offer a few suggestions relative to the carrying out of the details

of this method, which will be found of value to the beginner. When I began the removal of all external growths by immediate excision, it was not uncommon for patients to call on the second or third day after the operation and complain of annoying pain, which sometimes lasted three or four days, delayed the healing process and usually ended in slight suppuration. This peculiar freak of a clean-cut surface was first attributed to a slight extravasation of blood incidental to the wounding or uncovering of some of the small veins, or to their sudden dilatation from a lack of support; but I have since concluded that it was due to the infection of the wound, and, at the present time, follow more decided antiseptic precautions. The part is first scrubbed with soap and water, and this is followed with a bichloride solution (1 to 3,000), preparatory to the operation.

As a rule I do not inform patients that there is to be any cutting done when I have under consideration the excision of an external growth, but use the word "removal" in speaking of the treatment. I state that the most painful part of the treatment will be the prick of a fine hypodermic needle, and usually exhibit the needle. No knife being used none is exposed, and the scissors, though much less formidable in appearance, may just as well be kept out of sight. In this way the most timid patient may be easily handled and never know, unless from an attendant of his or her own, just what was done.

My method of treating internal hemorrhoids leads many to believe that I treat all rectal diseases without doing any cutting. Such however is not the case, for I use the knife and scissors, especially the scissors, probably oftener than the hemorrhoidal needle. To the educated and those who have full confidence in my methods, I frequently explain what I am about to do and give my reasons for the same, stating that there are no large vessels to wound in the removal of external formations, that the bleeding is usually slight and under immediate control, and that danger of hemorrhage in the treatment of rectal diseases is confined to cutting operations within the bowel.

Condylomatous growths, particularly those produced by or found associated with internal hemorrhoids, often extend entirely across the anus on one or both sides, and have a corresponding attachment from three-fourths to an inch or more in length. These cannot be

raised evenly throughout their entire length of attachment by a pair of common vulsellum, or four-pronged forceps, and be amputated by a single clip of the scissors. Finding no instrument in the market of proper size with a suitable shape for this purpose, I had one made after the style of that shown in the cut, with a grasping capacity of three-fourths of an inch.



Condylomata forceps

Should the dressing become disarranged within the first few hours after the excision of an external growth, bleeding may ensue, and therefore I am in the habit of informing patients, particularly those who have some distance to travel, of the possibility of such an occurrence, and how to meet it; they are told that pressure upon the bleeding surface through the medium of a small piece of cotton rolled or compressed between the thumb and finger will at once stop the flow, and are then instructed how to proceed, if need be, to apply and retain the cotton in place. They are also informed that the reparative process will have so far advanced after the lapse of twelve hours, if sufficient rest be given to the part, that the liability of annoyance from bleeding thereafter will have ceased. A point to be remembered is that the retaining or T-bandage should always be examined after the patient resumes the standing position, for it will almost invariably be found loosened and need retightening. The dressing should be removed the day after the operation, the bowels given an opportunity to move, the part cleansed with

pyrozone, dressed with iodoform, calomel or bismuth, and a pledget of cotton applied. If the bit of cotton placed in contact with the wound at the time of the excision is disposed to stick, let it remain until loosened by nature.

The most effective and the least painful method of cocainizing an external growth before excision, is to use a strong solution

of cocaine, and to cauterize the place or places where it is intended to make the first three or four punctures by the application of pure carbolic acid on the end of a probe or to make the surface insensible by the ethyl chloride spray. I use carbolic acid mostly and am in a habit of drawing a line entirely around the base of the growth with a probe dipped into it. The least painful place of inserting the hypodermic needle (28 gauge) for the purpose of injecting the first few drops of cocaine is on the upper or mucous surface.

An improvement on my former plan of applying the ball of cotton to the surface at once to prevent hemorrhage after the amputation has been made consists in nipping any spurting, throbbing, or pulsating vessel or vessels with Pean's or Wood's forceps, which are allowed to hang down. The surface is then sponged with a lysol solution, and if enough tissue has not been removed in places it should be picked up and excised. Now give the artery forceps one-half or one complete turn, release them, compress a piece of cotton between the thumb and finger, dip it in the lysol solution, apply to the surface, retain with larger pieces of cotton and the T-bandage. Should the bandage become loose and the dressing disarranged, there need be no fear of hemorrhage after this procedure, and the most timid physician should not hesitate to undertake it. The arteries here are all of small caliber, often not more than one is found, and the laceration to the vessel by the compression of the forceps alone is usually sufficient without twisting. The application of the forceps is seldom felt. There is a greater likelihood when amputating these formations of taking off too little than too much. All the tissue that appears redundant should be removed down to an even base. The cocaine solution should be strong, sixteen to twenty per cent. When will the profession learn that there is no danger from the use of strong solutions either of cocaine or carbolic acid? I have never seen the least disturbing effect from one or the other, and I use both fearlessly.

Experience has taught me since preparing the first half of this manual, about two years since, that strong solutions of cocaine are preferable to weak ones in operations about the anus. Strong solutions act more quickly and profoundly, distort the tissues less, and are less liable to quick absorption. I always use enough to produce the desired effect regardless of the quantity, and in not a single instance have I ever seen an indication that even the smallest amount of the drug had been absorbed. See remarks on cocaine in the Appendix.

ITCHING OF THE ANUS.

EXCLUDING all discoverable local causes whereby the existence of pruritus ani may be explained, such as piles, ulcer, fistula, oxyuris vermicularis, eczema marginatum, etc., and take the disease unalloyed, or as it may be found in a state pure and simple, and assure a patient thus afflicted that he can be quickly and permanently cured, would not only be presuming too much, but would be stepping far beyond the legitimate bounds of all past recorded experiences.

To furnish something of an idea to those who are not already familiar with this apparently trivial yet often rebellious complaint, I here quote the language of Dr. Hoyt, who uses words somewhat extravagantly in the beginning of his remarks, but seemingly palliates his feelings later on with *lotio niger*.

Hesays: "With what anguish its unhappy victims battle through innumerable sleepless nights, fighting this demon of so-called local epilepsy, with its long array of itching, burning, exuding, corroding, exhausting, and blaspheming characteristics, as though they had been brewed by the chemistry of hell. The whole organization becomes a chaotic discord, the disposition is cruelly warped, the countenance shows a sad picture of living woe, the carriage is nearly lost to all laws of equilibrium, and the complete being merges into a throbbing phantom of despair, trembling upon the very threshold of idolized suicide.

"Of course I speak of the most aggravated cases, instances that seldom occur within the experience of general practitioners. Wherefore, then, these phenomena? What is the mighty influence that yields so much distress, as all these subjective symptoms are but an appearance outflowered by some subtle and specific force. The meager literature upon this subject hobbles upon the crutches of hypothetical inferences, telling you *perhaps* it is capillary congestion, or chronic proctitis, or neurotic hyperæsthesia or eczema, or malaria,

suggesting a panoramic array of remedial agencies all unsatisfactory, thereby confessing to a sad condition of helpless empiricism.

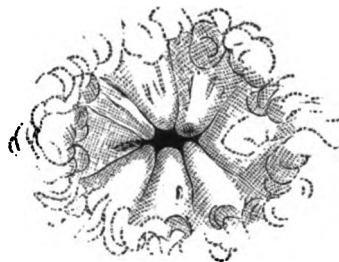
"My comprehension of this subject compels me to indorse the parasitic theory, though it may excite your disapproval, and perhaps your ridicule, yet it can be easily verified by directing your management towards the destruction of the parasite, when all symptoms will disappear. Mercury is quoted as nearly a specific for the annihilation of these marauders, and the very best method of administration is by using Lotio Niger.

"Thrice daily the patient should relax the respiration of the cutaneous surface by the free application of hot water, just as hot as it can be comfortably endured. Then immediately afterwards, *while the skin is made absorbent* by the action of the liquid heat, it should be saturated with this medicine in the most thorough manner. Within three days' time the itching will be reduced fifty per cent, but the complete result is attained only after a continued use of from four to eight weeks.

"In many cases there will remain points or patches where the agent does not seem to act, and to these I usually apply the regular unguentum hydrargyri. Avoid all soaps and ointments except as above stated, thereby preventing the obstruction to absorption of the remedy as it has to enter the pores of the skin in order to act upon these energetic enemies that hold their victims under such a terrible bondage."

It is characteristic of pruritus for the paroxysms of itching to come on mostly after the patient gets warm in bed, at which time the annoyance may be further increased by a moisture or an exudation about the anus.

In long-standing cases, the skin about the anus becomes thickened and horny in texture, and loses its pigment and elasticity. Portions of its radiating folds sometimes become so hypertrophied and elongated, from the effects of gouging and scratching, that they look like and are often improperly called external piles. They should be removed by excision, the same as other condylomata.



Thickened condition of the skin in pruritus. (Esmarch.)

In the treatment of pruritus ani, a thorough search for a local cause and its removal, if any be found, will find a lasting reward in the results obtained.

Of the obscure local causes, perhaps animal and vegetable parasites are the most difficult to find. The injection into the rectum of a decoction of quassia bark or lime water and carbolic acid, will be efficacious in dislodging the oxyuris vermicularis, which may or may not be seen like small pieces of white thread lodged between the anal folds.

For the vegetable parasites, trichophyton, etc. (microscopical), sulphurous acid ranging in strength from fifty per cent up, is an old and tried remedy. Immoderate eating, drinking coffee, and smoking excites the itching with some. Whenever it is decided that no dietary or local trouble can be found as an assignable cause, and that the disease is purely neurotic in character, we begin to grope in the darkness for remedies. What relieves one will not another, and what relieves for a time may lose its effect altogether.

Hot water compresses, a little short of scalding, are good for temporary relief, and act well as an intercurrent remedy. Among the remedies highly recommended are linseed oil, thuja occidentalis, carbolic acid, *citrine ointment*, creosote, yucatanol, oil of cade, *ammoniated mercury*, unguentine, compound tincture of green soap, black wash, and *galvanism*. The anode is placed over the perineum and at base of the scrotum, and the cathode against the anus or within the grasp of the sphincters; claimed to be a specific. Nerve stretching by divulsion of the sphincters is also recommended.

As to the utility of nerve stretching in the treatment of pruritus I am in doubt. Although I have never tried the method myself, a case which recently came under my observation leads me to believe that it cannot be recommended. The following is a synopsis of the case:—

Mr. T., a bank clerk, had a severe attack of pruritus, and believing that he had some serious rectal trouble, applied for treatment to a local hospital, which was presided over by one of the most prominent surgeons of this city. The surgeon made an examination under anæsthesia and pronounced the case that of fissure. After a few days' dieting, anæsthesia was again administered and the sphincters forcibly dilated. As soon as the parts

regained their normal condition, the itching returned. The patient was then for the third time placed under anæsthesia and the sphincters more completely divulsed, producing a rupture of the tissues in several places. Recovery from the effects of the stretching was not so rapid this time, and a great deal of pain was experienced before the sores made by the ruptures were healed. Shortly after the patient had been discharged from the hospital, the itching was as bad as ever, and he was advised to come to me for advice. Equal parts of citrine ointment and simple cerate were prescribed. Relief was immediate but not complete. Citrine ointment was then used in full strength, when all symptoms of the disease disappeared. Citrine ointment has served me better in the treatment of pruritus ani than any other remedy.

The following are some of the principal formulæ used for itching of the anus:—

R. Acid. carbol.....	gr.xx
Sulphuris.....	3iij
Ung. citrini	}āā 3ss
Cerat. simp. vel lanolini }	

Misce.

R. Hyd. chlor. mit.....	℥iv
Adipis.....	3j

Misce. Said to be a specific for pruritus ani or vulvæ.

R. Hyd. chlor. mit	3j
Balsam. Peru.....	3iss
Acid. carbol	gr.xx
Lanolini.....	3j

Misce.

R. Ol. cadini.....	3j
Acid. salicyl.....	gr.xv
Ung. zinci oxidi q. s. ft.....	3j

Misce.

(Kelsey

R. Liq. carbon. Detergentis (Wright's).

Glycerinæ.....āā ʒj.

Zinci oxidi

Calamini prep.

Sulphuris precip.

Aquæ puræ.....ʒvj

Misce. (Allingham.)

R. Hydrarg. ammoniati ʒj

Benzoini pulv.....gr.xx

Lanolini.....ʒj

Misce. et. sig. Apply once or twice a day or as occasion requires. (Waugh.)

R. Hyd. chlor. cor.....gr.iv

Vaselin.....ʒj

Misce. (Mathews.)

A small piece of cotton gauze, which has been moistened with a solution of hypochlorate of chalk, two to the hundred, and pushed inside the anus, is said to relieve pruritus ani immediately. The gauze should be allowed to remain in place until sharp smarting commences. It is then removed and the surface wiped dry.

Acidity of the alimentary tract and that condition known as uricæmia are believed to excite itching of the anus with some.

DILATATION OF THE SPHINCTERS.

FORCED dilatation of the sphincter muscles at the terminus of the rectum as a means of relief and cure for certain forms of rectal trouble, although a much abused and somewhat barbarous practice, has positive and undoubted merits. It is only justifiable, however, in peculiar and isolated cases. The wholesale stretching of the sphincters is certainly to be deprecated as unscientific, illogical, and without the advantages claimed for it by rattling and noisy fanatics. Divulsion injudiciously employed may be followed by very undesirable sequelæ and long and tedious recoveries, and thereby excite adverse and unending criticism.

The case of a lady recently came under my observation, who, although in average health, complained a little, as many women do, and thought she was troubled with hemorrhoids. Through the advice of her physician, a college professor, she submitted to the operation of stretching the sphincters. Irritability of the rectum followed, with soreness and continued pain. Finally two large sympathetic buboes developed, which suppurated, and were slow in healing. This happened a little over a year ago, I am reliably informed, and she has not yet fully recovered.

A number of cases have come to my notice in which stretching was practiced for the cure of piles, imaginary spasmodic sphincter, etc., without the least benefit, except, possibly, that accruing to the physician.

A young married man, foreman of a printing office, complained at times of slight pain in the region of the liver. His physician, an editor of a medical journal, made an examination of the rectum with a speculum and informed him that it would be necessary for the preservation of his health, to undergo the operation of stretching the sphincters. The day and hour for the operation had been agreed upon, but fortunately the physicians failed to arrive at the appointed time and, through the advice of a friend, he embraced

the opportunity and came to my office for an examination. His bowels were regular, there was no history of rectal disease nor the least sign of any, nor was there a shadow of an excuse for an operation.

The cases in which divulsion seems to be of greatest benefit are found mostly among women of a peculiar high nervous tension, or organization, in whom the sphincters have become more or less hypertrophied, from repeated spasms, with obstinate constipation as the prevailing symptom. In such cases forced dilatation is the only means of relief. A lucid description of the temperament to which reference is here made was given by Dr. E. F. Hoyt in a paper read before the New York Medical Society, February, 1889, in which he gave the history of two very interesting cases of hypertrophy of the sphincters successfully treated by him by means of divulsion. He said:—

“In April, 1882, there walked into my office a lady of about thirty-three years of age, handsome, rich, married, and in good general health. She proceeded to tell her story, and a ‘tale she did unfold,’ relating experiences she had had with nearly all the available physicians here and in Brooklyn, telling of many operations endured, mentioning a galaxy of remedies she had tested, enumerating a wilderness of pains, and still suffering. She concluded her pathological autobiography by boldly stating that if I should promise to do her any good, she would think me either a knave or a fool, as she had consulted gentlemen that knew all that was known upon this subject, and without result. I replied by politely asking her to promptly walk out into the street. Do you know, returning impudence for impudence commanded her confidence at once, and she came down from her lofty pinnacle of egotism, and proceeded to compromise our differences. She was one of those fine cultured women, highly educated, gifted with a large ability to enjoy or suffer, possessing a disposition that was at times a perfect flower-garden of angelic loveliness, magnetic, poetic, æsthetic, just the kind of a woman to ensnare the sentiment of any large-souled man, until she had unloaded in his presence one of her cyclonic waves of pyrotechnical temper, and then he would hate her. All this proves that the most unsystematic of all systems is the nervous system. The local condition as manifested by her descriptive

language, was one of almost constant tenesmus, delicate soreness, and an inability to have a natural movement of the bowels, which was only accomplished by taking a large amount of compound licorice root upon retiring, which responded the following morning, leaving the patient so exhausted that she had to remain in bed all that day; and this had been going on for fifteen years. By forcing the function about three times weekly could she only realize any comfort at all.

"Upon examination I found a sensitive spasmodic sphincter muscle, with its correlative condition of engorged submucous tissue. It was tissue of this character that had been excised under the mistaken impression of being hæmorrhoids. Only in women of such fiery and eccentric temperaments have I ever found this particular manifestation, and that is the reason I elaborate her peculiarities so minutely, as it is safe to suspect a spasmodic sphincter wherever a high-strung nervous woman tells of having obstinate constipation attended with great exhaustion subsequent to a movement. The slightest effort to exercise any extrusive force would cause the muscle to spasmodically contract, and thus it had misbehaved for all this time, obstinately refusing to surrender, and would have held to its wayward career until now, had not its conceit been overcome by dilatation, and in two days' time the woman was well and remains so to the present date.

"Another attractive specimen of necessity for dilatation was the case of a lady about fifty years of age, in good general health, and very nervous. About four years since she called upon me and related experiences arising from her condition, experiences realized in nearly every capital of the whole world, and varied enough in detail to form the subject matter of a Rider Haggard novel. Upon examination I discovered a hypertrophied sphincter muscle, so extensively thickened that it was impossible to have a natural movement of the bowels. For about twenty years, and by the advice of a physician in Rome, she had introduced into the rectum every night upon retiring, about eight inches of a large Roman candle, such as are used in the cathedrals there, and during the following morning the relaxation had been so accomplished as to allow the movement after this taper had been withdrawn. The muscle was promptly dilated and from that time she discontinued

the Roman expedient, gained greatly in general health and has been a much happier woman ever since."

Divulsion should be accomplished with the patient lying on the side, and under the most profound anæsthesia. Rectal dilators, which distribute the force evenly all around, may be first employed, and then the thumbs or the thumb of right hand and index finger of the left or two fingers of each hand, to completely paralyze the muscles. The process should be slow and gentle, and caution exercised lest the tissue give way from the application of undue force.

A certain amount of kneading, or massage, of the external sphincter will greatly aid in overcoming its resistance, and lessen its liability to rupture, an accident much to be regretted. When the dilatation has been carried sufficiently far, the mucous membrane will protrude, or show more or less at the anus.

While the female rectum is much more distensible than that of the male, the sphincters have not the support anteriorly that they have in the latter, and therefore those doing rectal surgery should be extremely careful in their divulsions when handling the female subject.

When constipation depends upon inertia, or a lack of expulsive power of the rectum, I think moderate dilatation advisable and decidedly beneficial. There are instances where tightness of the sphincters exists, superinducing constipation, etc., not traceable to any appreciable cause. These cases may sometimes be relieved without the aid of general anæsthesia, by graduated dilators or rectal bougies, accomplishing little at a time, daily or tri-weekly.

A circumscribed irritation of any portion of the mucous membrane within the sphincters is often found to be sufficient, by reflex action, to keep the bowels soluble while the irritation lasts. This fact is evidenced by a looseness of the bowels sometimes following the removal of rectal pockets and papillæ, the injection of small hemorrhoids, the presence of ulcer, applications to fissure, and the application to the mucous membrane of boric acid as recommended by Dr. Herr Flatau, of Berlin, for chronic constipation due to torpor of the colon.

About twice a year an avalanche of literature is thrown upon the profession, advertising a certain kind of rectal dilator, and setting forth (?) "The Philosophy of Orificial Dilatation and its applica-

tion to the treatment of hemorrhoids and other chronic diseases." I desire it understood that I am not considering dilatation which must necessarily precede many operations on the rectum, but as a remedy alone for the cure of disease. We all know that it is the first thing to be thought of in cases of fissure, or whenever spasm or tightness of the sphincters exists. If dilatation could be practiced without general anæsthesia, I would heartily recommend it in

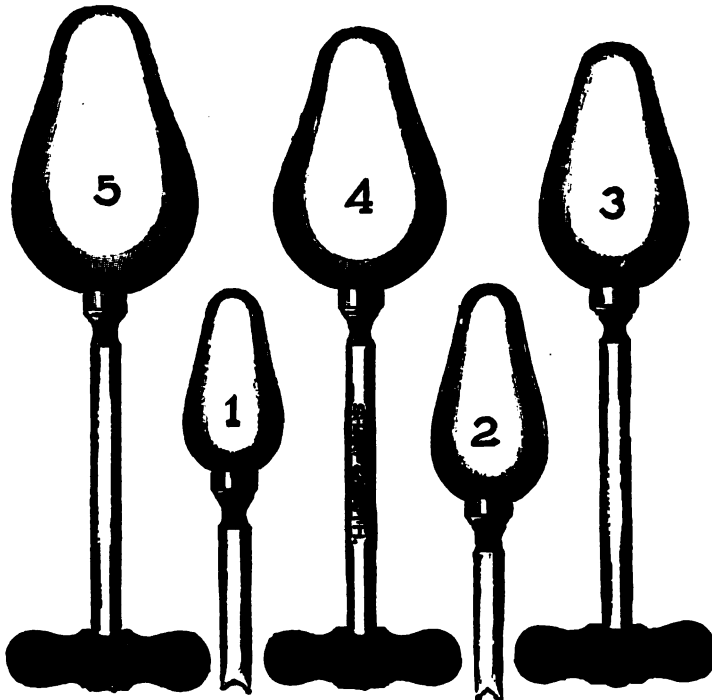


FIG. 67. Graduated rectal dilators. (Pratt's.)

the treatment of hemorrhoids when handling certain temperaments, as a sure means of forestalling spasm and preventing pain; but it can not, and many would be frightened away at the suggestion of chloroform.

The theory of those who claim so much for "Orificial Dilatation" is that health depends directly upon a free, strong and steady circulation of the blood; that "it is well known that it is upon

nerve force alone the circulation depends for its activity;" that "whenever there is sufficient irritation of any tube of the body, stricture or contraction occurs at that point;" that "the rectum, for obvious reasons, is more liable to irritation than any other tube, and that not only it, but its powerful closing muscles, are thrown into a state of contraction, and its lining is held in this vice-like grip week after week, and the consequences are seen in the sluggish peristaltic action and defective circulation;" that "this pinching of the terminal nerves is not the only harm done," but that "the constant contraction of the muscles is very extravagant of nerve force, and tires out the whole sympathetic system;" that "it slows vital processes," impedes the local and "disturbs the general circulation, which invariably precede a whole train of reflex troubles that find their seat in the stomach, lungs, heart, kidneys, brain or some important organ of the body;" and that the remedy for all of this is forcible dilatation of the sphincters.

Nothing is said by the "Orificial Surgeon" about the propriety of meeting the "stricture or contraction of the tube" with its train of reflexes by relieving the primary cause, the local irritation; nothing is said about the local irritation or congestion having a remote cause in many instances, such as an obstructed portal circulation, etc.; nor does he give us a clear understanding of the efficacy of dilatation in those old cases of hemorrhoids in which the sphincters are so lax, or weak in contractile power, that the tumors are almost constantly in a state of prolapse, and the "vice-like grip" spoken of cannot be reckoned as a factor.

It is claimed that, "under the skillful dilatation of the rectum, the wavering spirit may often be brought back from the very threshold of death, whether from anæsthetics, narcotics, drowning or heart failure." There is more truth in this statement than would at first appear. The putting of the sphincters on the stretch has a decided effect in reviving a patient when anæsthesia has been carried a little too far.

FLUSHING THE COLON.

I HAVE always been loath to give audience to a thing purported to be of value in the practice of medicine and surgery, which did not proceed from an authoritative source or bear some evidence of having received professional recognition. A little retrospective medicine, however, is sufficient to teach any of us that many important discoveries have been made without the free will and full consent of "acknowledged authorities," and that it is not positively necessary for progressive physicians to first obtain the permission of such authorities before being allowed to think and act for themselves.

Flushing the colon is a discovery of intrinsic worth, brought to notice in an irregular way, and has its place as a remedial agent with which every physician should become familiar. If you doubt its efficacy, and want a free evacuation of the bowels without taking physic, lie on the back with hips elevated and, through a fountain syringe, allow from one-half to three-fourths of a gallon of rather hot water to gently flow into the rectum and thence through the flexure into the colon, and you will get surprising results inside of fifteen minutes.

I have often been amused by the copious evacuations produced by the flushing process; they being not unlike those produced by an active cathartic. This means of unloading a torpid colon will certainly be looked upon as a boon to those who find it necessary to relieve themselves every three or four days by catharsis. I do not find that the bowels are left inactive after a flushing, in fact they seem to be left in a soluble condition and will probably move the next day of their own accord, the column of fecal matter from the small intestine, which is always in a liquid state, being allowed to descend. A small portion of the water usually remains in the ascending colon after the general evacuation has taken place, and will either be expelled by way of the rectum some minutes later or be absorbed and pass off through the kidneys.

I do not see that Dr. A. W. Hall, who claims in his health pamphlet to be the father of the process, and whose name bears the titles of Ph. D. and LL.D., and is consequently deserving of the respect of an educated man, makes out a clear case in defense of his "New Hygienic Treatment" as a life-giving principle, *either* in health or disease. His argument is certainly unphysiological, and we are left to infer that nature has been derelict in the construction of man, which he has been instrumental in supplementing. If he were to confine himself to disease alone, his reasoning would appear more plausible; but he holds that persons enjoying good health, with no physical ailment whatever, should wash out the colon; that in the adoption of this practice as a hygienic measure, health will be preserved and the body fortified against the inroad of general systemic disease, youth maintained, the old limbered and rejuvenated, and life prolonged to an average of one hundred years.

The theory advanced in support of these rather extravagant claims is that the flushing process carries away all deleterious and excrementitious matter, which otherwise would become absorbed, and that it eliminates from the ingesta, calcifying, or earthy substances, which are not required after the prime of life has been reached, and are thenceforth stiffening to muscles and joint.

No doubt Dr. Hall has been greatly benefited by flushing the colon, as also have many others, which offers some apology for the enthusiasm and interest he manifests in the "new revelation;" but we shall be compelled to look to others for the pathological conditions in which it will be found of greatest service.

Respecting the colon itself, there are two very diverse conditions, with their concomitant symptoms, in which flushing will be found of great benefit; the one, a diseased condition of the mucous membrane of a chronic dysenteric or ulcerative character; the other, a sluggishness or torpidity of the bowel belonging to a constipated habit.

The easiest, simplest and most efficient manner of practicing the flushings, according to my experience, is by assuming the position shown in the cut. A piece of oilcloth, rubber cloth or a newspaper may be used to protect the carpet. One or both feet are allowed to rest on the floor, so the hips can be raised by the slightest exertion for a few moments any time it is desired to hold and hasten

the water down the incline, or the hips may be elevated by means of a suitable pad.

A fountain syringe with a capacity of holding one gallon is preferable to the common bulb syringe for conveying the water into the rectum, the flow being regulated by compressing the tube between the thumb and finger. Those unaccustomed to the flushings should begin with water comfortably hot and permit it to flow slowly into the rectum, giving it time to pass through the sigmoid flexure into the colon. The quantity of water necessary to produce the desired effect varies with the capacity of the subject, the average being about three quarts. If not enough be used, a free evacuation will not take place; if too much, there is some danger of producing temporary paralysis of the colon from overdistention.



FIG. 68. Flushing the colon.

The principal drawbacks to flushing the colon as a substitute for purgatives is the inconvenience and time required in going through the process daily. People do not seem to know and physicians fail to inform them that nature provides for a certain amount of accumulation in the bowels, and that the bowels are never expected to be entirely empty. After the bowels have been freely evacuated, they naturally require from three to four days' time to fill up to their normal condition, and act of their own accord. Once every three or four days is, therefore, sufficiently often to flush the colon when it is desired to relieve or prevent an overaccumulation, the object for which purgatives are usually taken.

Some who are anxious to try the flushings complain that the

desire for a movement becomes irresistible after a small quantity of water has passed into the rectum, and that nothing more is accomplished than would be by a simple enema. Such persons should be instructed to make the second or third effort, and they will doubtless be able, after the rectum has been unloaded, to retain enough water to produce a satisfactory effect. Nothing but pure water should be used. Alkalies, such as soaps, borax, etc., dry up the intestinal secretion and aggravate an already torpid condition.

Dr. J. H. Etheridge (*Trans. Chicago Med. Soc.*) gives a number of cases of impacted colon, in which daily flushings, extending over a period of from one to three months in each case, were followed by the most grateful results; this, too, after the persistent use of drugs had almost hopelessly failed to afford even temporary relief. Without segregating the cases mentioned in his report, some were dyspepsia, characterized by anorexia, acid and bitter eructations, bad taste in the mouth, gaseous distention, gastric weight and pain. In other cases the most prominent symptoms were cephalalgia, chills, vertigo, chloasmic spots, *muddy sclerotics* and *complexion*, insomnia, ennui, eczema, psoriasis, and dysuria. He says:—

“Daily movements of the bowels are no sort of a sign that the colon is not impacted; in fact, the worst cases of costiveness that we ever see are those in which daily movements of the bowels occur. The diagnosis of fecal accumulations is facilitated by inquiring as to the color of the daily discharges. A black or very dark green color almost always indicates that the feces are ancient. Prompt discharge of food refuse is indicated by more or less yellow color. It would be interesting to inquire why fresh feces are yellow and ancient feces are dark.

“Absorption of the feces from the colon leads to a great many different symptoms; among others, anæmia, with its results, sallow or yellow complexion, with its chloasmic spots, furred tongue, foul breath, and muddy sclerotics. Such patients have digestive fermentations to torment them, resulting in flatulent distention, encroaching on the cavity of the chest, and in excessive cases may cause short and rapid breathing, irregular heart action, disturbed circulation in the brain, with vertigo and headache. An overdistended cæcum, or sigmoid flexure, from pressure, may produce dropsy, numbness or cramps in the right or left lower extremity.

"I have often questioned whether chloasmic spots were not due to fecal absorption. These spots are pigmentary matter deposited under the skin. It is a physiological fact that all pigments originate in the liver. In a condition of health their abnormal deposit we never see. It is only when the patient is not well, in some way, that these spots are noticed. They are infinitely more common in women than in men. It is easy to see that their sedentary life is more apt to lead in them to the filling of the colon. Absorption from the colon produces a poisoned blood, which in turn deranges every organ of the body, among others the liver. It is possible that the action of light, as in photographs, contributes in some way to precipitate the deposits of these chloasmic spots, because we see them chiefly upon the parts of the body exposed to light.

"The use of a long rectal tube is unnecessary for flushing the colon. The patient should be placed in a genu-pectoral position, the shoulders thus being lower than the hips. The water will be made to descend while anatomically ascending the intestines. Patients can be made to receive from one to six pints of water in this position without the slightest trouble. One of the effects of the water is to distend the colon, thus pressing away the walls of the loculi from the accumulations that fall into the current of water and are passed out while the water is leaving the intestine. The patient will oftentimes complain of severe tormina, checking the current of water for a few seconds, which is followed by complete relief. The presence of such a strange foreign body in the intestine as hot water in many cases excites prodigious peristaltic activity, thus producing the tormina. Plain hot water is all that is necessary to use; the water should be hot; cold water or tepid water will not do. It will produce great suffering. One patient took the flushings for a fortnight, and returned vowing she would never use any more because they produced such terrific cramps. Upon inquiry it was found that she was using tepid water. The subsequent use of hot water by her was never followed by a cramp. Upon many patients this large amount of water acts as a vigorous diuretic. Where patients suffer as well from renal insufficiency, I am in the habit of telling them to use a pint or a pint and a half of hot water after the flushing has passed away, and to lie upon the back with hips elevated for half an hour. Thus retaining the water, it will act as a power-

ful diuretic. Some patients can administer this flushing with greatest ease, while others will develop a most phenomenal awkwardness. I generally advise patients, who are at all awkward about using these flushings, to kneel in the bathtub."

Flushing the colon just before bedtime will relieve restlessness caused by an overloaded bowel

RECTAL REFLEXES.

THE lower end of the rectum is richly supplied with both sensory and sympathetic nerves, the sensory greatly predominating at the verge of the anus, making this part of the body an acutely sensitive surface. In ascending, the sensory nerves gradually give place to the sympathetic, until little sensibility is imparted through the touch three inches from the entrance, in a normal condition. This accounts for the hidden cause of so many reflexes, having their seat of origin from lesions situated an inch or more above the anus, where the sensibility is not always sufficiently great to attract attention.

It is claimed that obscure rectal disorders may so undermine the nervous system by reflex irritation, allowing the inroad of general systemic disease, that many die yearly from such causes without anyone ever knowing the origin of the fatal malady; that migratory pain, headache, dyspepsia, sleeplessness, palpitations, sexual weakness, nervousness, despondency, irritability, and a general breaking down of the system, may all be caused by a small ulcer or other irritation of the rectum, which has passed unnoticed by either physician or patient.

"In all pathological conditions," says Professor Pratt, "surgical or medical, which linger persistently in spite of all efforts at removal, from the delicate derangements of the brain substance that induce insanity, and the various forms of neurasthenia, to the great variety of morbid changes repeatedly found in the coarser structures of the body, there will invariably be found more or less irritation of the rectum, or the orifices of the sexual system, or both."

While there is doubtless unwarrantable exaggeration concerning rectal reflexes by some, there are many unpardonable oversights by others. A case was reported in the *Medical Record* in which all preparations were made to operate for organic stricture of the urethra, which, perchance, was found to be a reflex from a small rectal fissure, and was purely of a spasmodic character. When the fissure was cured the spasm ceased.

As evidence that physicians should be a little more vigilant in the observation and study of rectal reflexes, the case of a very talented and influential lady of this State may be appropriately instanced. Her general health had been greatly impaired for a long time, with unexplained and repeated outbursts of sickness. Several prominent physicians were consulted, to whom she called attention to a little uneasiness, at times, in the rectum with an irritable bladder. They all examined the rectum, in their way, and ridiculed the idea of local disease, but went on treating the reflex symptoms with nothing more than temporary relief.

The successes of a local specialist in the treatment of hemorrhoids by the Brinkerhoff system, whose ignorance of anatomy was such that he denominated the sphincters "dispenser" muscles, induced her to pay him a visit. He found a well-defined superficial rectal ulcer and exhibited it to one of the previously named doubting physicians. The ulcer was quickly healed and the lady restored to health. She became so enthused over the result that she took up the study of rectal diseases for the benefit of others, as a missionary, so to speak, and it is needless to say that the physicians who failed to detect the cause of her trouble did not reap any of the emoluments of her labors, but there were several irregular practitioners who were ready listeners and took in some handsome fees as a reward. Her motto, true to a grateful nature, was to "praise the bridge that carries you over."

Among the obscure rectal lesions which have been found to produce powerful, and, for a time, baffling reflex disturbances, may be mentioned small irritable ulcers, small submucous fistulæ, and a localized denudation of the epithelium of the bowel, leaving the mucous membrane red and angry. To these may be added an obscure disease as far as its pathology is understood, but not as far as its symptoms are known. The disease to which I refer has a decided

rectal expression in the form of marked tenesmus, and is spoken of by some writers as a rectal disease, but such does not appear to be its proper classification. It is known as "pellicular colitis," or "pseudo-membranous enteritis," a condition in which mucous casts of the lower bowel are discharged with much tenesmus and abdominal pain.

RECTAL POCKETS AND PAPILLÆ.

CONCERNING the frequency of the accidental structures to which the names rectal pockets and papillæ are applied, and their being such prolific sources of mischief, as claimed by those who first caught up the craze and exaggerated the facts, a few brief comments may not be out of place. That there are such structures and that their appearance suggests the titles they have received, is undeniable, and the fact of their having been brought to notice in an irregular way does not militate in the least against their existence nor the fitness of the terms used to designate them.

Andrews makes a labored effort, and with apparent success, to show that the so-called "pockets and papillæ" are normal structures, that the pockets are the *sacculi Hornei* (Fig. 69), which are little depressions situated just above and intimately connected with the verge of the anus, caused by the reticulated arrangement of bands



FIG. 69. *S. Sacculi Hornei*. P. P. Papillæ, magnified three diameters. (Andrews.)



FIG. 70. P. A double rectal pocket with adjacent papillæ; normal size. (Rare form.)

of muscular and connective tissue beneath a delicate mucous membrane, and deepened by the corrugating action of the sphincter muscles; that the papillæ are little dot-like prominences frequently found between the lower ends of the *sacculi Hornei*, and when somewhat enlarged resemble in appearance the *carunculæ myrtiformes*

of the vagina; that these little papillæ, with their adjacent "pockets," constitute the so-called "pockets and papillæ" of the itinerant.

I have seen just what Dr. Andrews very correctly describes, and will say, after carefully reading his explanation, that I am fully convinced that he never saw what is meant by the discoverer of rectal pockets and papillæ.

It will be seen by a reference to the appended clipping, that Andrews has been making his microscopical dissections nearly an inch below where true rectal pockets and papillæ are found, although I have always found them about midway between the sphincters, or half an inch from the verge of the anus. I can conscientiously attest that true rectal pockets and papillæ respectively bear no resemblance in the least to the *sacculi Hornei*, or to his papillæ, or *carunculæ myrtiformes*, at the anal verge.

Rectal pockets are doubtless duplicatures of the mucous membrane, forming cul-de-sacs with their mouths looking upward. They may be removed through a speculum by first applying carbolic acid to their outer walls, raising the walls with a blunt hook, and excising them with a pair of curved scissors.

Papillæ may be seen in four different forms: One, a white, flat, or sessile process, resembling the half of a split pea, but not quite so large; another, a small, white, rather stiff projection sometimes seen on the side of a large pocket; the third, a slender, perfectly flexible, worm-like vegetation, possessed of a white or transparent



FIG. 71. Varieties of papillæ.

top; and the fourth, a white, fibrous, pyramidal shaped formation, flattened from above downward; Figs. 70 and 71. They appear to spring out of the mucous membrane similar to a polypus, and can be raised with a tenaculum and snipped off at their bases with trifling pain and little loss of blood.

"The usual location of pockets and papillæ," says Professor Pratt, "is at a point about an inch from the anus, at the upper margin of the internal sphincter, where the large distended pouch of the middle portion of the rectum is abruptly puckered down to the narrow limits of its last inch.

"These pockets are curious formations, and have received very little attention from writers upon rectal disease, and they have been almost entirely overlooked by anatomists, as well as pathologists. Whether they belong to the anatomy or not, I am unable to state with any certainty, but I know for certain, however, that they are not always present. I know also that they can almost always be found in cases of old, deep-seated, chronic diseases, and that the removal of these pockets in this class of cases is followed by the most happy results.

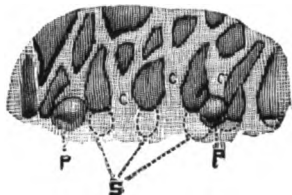


FIG. 72. Represents figure 69, showing reticulated arrangement under post-mortem relaxation. C. C. C. Columnæ recti. S. Sacculi Hornei. P. P. Papillæ. (Andrews.)

"When these pockets are present, they always occasion a spasm of the internal sphincter, and this alone makes excessive demands upon the powers of the sympathetic nerve. They are common in all forms of chronic disease. I know of no reason why these conditions which I have described should have been so long overlooked, and their importance have remained unappreciated, unless it be that their presence is unattended by local symptoms, and hence they have failed to attract the attention of either patient or the physician. But in view of the fact that they occur in so many chronic conditions, and the additional fact that marked benefit almost invariably follows their removal, I insist upon it that no obstinate case of chronic disease has been properly examined until their presence or absence has been ascertained. The most happy and the most marvelous results that I have ever seen in the practice of medicine and surgery have followed the removal of pockets and papillæ, and in thus bringing them to your notice, I do so in the confident belief that a proper appreciation of their importance on your part will add materially to your resources in battling with disease, and in helping those who apply to you for relief."

As before stated, I have never found rectal pockets and papillæ

to occupy a position as high as that given by Professor Pratt, and I am inclined to think that he is mistaken relative to their usual location. Neither am I prepared to believe that rectal pockets are commonly associated with "old, deep-seated, chronic diseases," as claimed by him, and that their removal "is followed by the most happy results." In fact, I have as yet to see the first case in which the removal of rectal pockets and papillæ was followed by any marked improvement in the patient's general health. It is only reasonable to conclude, however, from the formation of rectal pockets, that they are liable to collect some foreign substance, become ulcerated and set up both a local and reflex disturbance, and that their removal under such circumstances would naturally be beneficial.

RECTAL POLYPUS.

A POLYPUS is a benign tumor springing from the mucous and submucous connective tissues, ranging in size from a wheat grain, when seen early, to that of a walnut, and is hard or soft in proportion to the relative amount of fibrous substance or glandular mucous tissue entering into its formation. Polypi have been known to attain a size in the rectum as large as an orange.

The hard or fibrous polypus is made up largely of the submucous connective tissue, is variable but mostly club shaped, has a whitish looking surface which never bleeds, and is principally found in adult life. It is not so large as the soft or mucous polypus incidental to childhood, which is more rounded and sessile, with a short, thick stem, and which possesses a strawberry-like surface that easily bleeds.

Some maintain that the true fibrous polypus takes in muscular fibers from the rectum, has a well-defined peduncle an inch or more in length, which is always attached above the sphincters, and is a rare growth; that it seldom protrudes, but when the pedun-

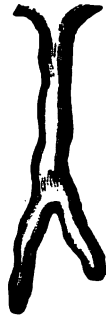


FIG. 73. Fibrous polypus with a bifurcated extremity. (Andrews.)

cle becomes sufficiently lengthened to allow of protrusion, it causes pain, irritation and spasm, and may set up ulcer of the bowel. The discharge from this variety is ichorous and foul smelling.



FIG. 74. Soft polypus.
(Esmarch.)

The villous or hairy polypus, found mostly in old persons, is so named on account of the papillæ of the surface being multiplied and elongated, giving it a hairy appearance. It has a red color, bleeds easily when touched, and is very uncommon.

While the peduncle is a characteristic feature of polypi, it is not to be understood that all are attached to the rectal wall in this manner. Some grow out directly by means of a broad base and are pyramidal in shape. Fig. 51 shows one of this sort. When first noticed, the nature of the two growths represented in that figure was somewhat uncertain, but all doubts were soon dispelled by observing them double in size within two weeks' time. After removal they were found to be hollow centrally with elliptical and concentric layers of fibrous tissue respectively. The stem of a polypus contains a central artery, the pulsation of which, in some instances, can be distinctly felt.

Any of the soft polypi may be easily and almost painlessly removed by injection, the same as hemorrhoids. The only hindrance to the successful treatment of the hard polypus by this method is the impenetrability and, sometimes, the inaccessibility of the growth. The usual way of treating polypi is to ligate the pedicle close to the mucous membrane and snip it off at a distance sufficiently far from the ligature to prevent the knot from slipping.

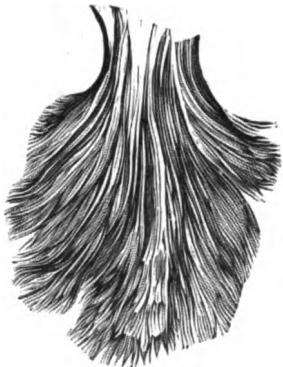


FIG. 75. Villous polypus.
(Esmarch.)

Polypi are not recurrent growths, and whatever method of removal is adopted, the cure is usually permanent. One case is on record in which the pedicle was attached as far up as the sigmoid flexure, and brought down with it a tube of peritoneum. The pedicle was ligatured and the tumor removed, but the patient died of peritonitis.

NEURALGIA OF THE RECTUM.

WHEN pain, continued, periodical or irregular, attacks the rectum in the region of the sphincters or higher, and no structural change can be found as a causative agent, it is called neuralgic. Some writers object to the term neuralgia in designating an affection of the rectum, believing that pain never occurs in the rectum except as a reflex from some other organ or diseased tissue, or as the product of a local lesion, which may pass undiscovered. Whatever be the cause, the attacks of pain in some of the cases characterized as neuralgic are remarkable for their suddenness and severity, the amount of prostration temporarily produced, and their almost equally as sudden disappearance, leaving nothing tangible from which to draw a conclusion. The sphincters in cases of this kind will no doubt always be found during the paroxysm to be in a state of tonic spasm.

In a paper entitled "The Nervous or Hysterical Rectum," read before the American Medical Association, May, 1888, Professor Goodell calls attention to the class of cases just described. In explanation of the fitness of the term "hysteria," selected by him to describe certain obscure diseased manifestations, he says in part:—

"The mind is sane, the organic body is sound, the individual as a whole is above reproach, and yet these muscles will behave as if they were bereft of reason. The muscles most liable to become hysterical are perhaps the circular ones, namely, the sphincters of the outlets or inlets. While insanity, so to speak, is more localized, the sufferings from the hysterical condition are perhaps greater."

There is another and I might say a more obdurate class of cases of a neuralgic character, in which the sphincters do not seem to be at all involved, and in which dilation in my hands has never availed anything. In this class, which is the typical neuralgic class, the pain comes on gradually, and is more dull or aching in

character, presenting symptoms somewhat analogous to those of coccyodynia. In some instances the patient finds comfort in sitting on the floor. In one case of this class which came under my observation, the patient, a very nervous and delicate lady, maintained that she was cursed with a rectal ulcer. In obedience to this idea her physician had examined the rectum under general anæsthesia, and found what he called an ulcer on the anterior wall. His diagnosis was, no doubt, founded upon her belief and as an apology for the examination and treatment resorted to, which put her to bed for six weeks. There were no symptoms of rectal ulcer, other than pain, and no lesion found by a digital examination or seen through a speculum. She insisted on taking chloroform and a more thorough examination made. This was done without revealing anything more than what had already been ascertained.

In discussing the class of cases under consideration, Professor Mathews holds to the view that such cases are not properly neuralgic, although he confesses that in some instances they seem to admit of no other classification. In defining his position he says:—

“For my own part, I believe that these so-called cases of neuralgia are due, first, to a lesion in the mucous membrane of the rectum, and the consequent exposure of a nerve filament, or, second, the source of trouble is not in the rectum at all, but is reflected from some other organ or tissue. If the case falls under the first division, and the erosion, abrasion, or what not, is close to the sphincter muscle, the pain is aggravated during the act of defecation; and if it is from the second condition, the pain is not aggravated during this act. Therefore I am inclined to believe that the term neuralgia as applied to these cases is a misnomer.

“I have never found that any anti-neuralgia medication did these patients any good at all, and, as I have already said, they were not such subjects as called for quinine, iron, strychnine, or any other tonic. But one point I wish to thoroughly impress, and that is that these patients should not be allowed to take opium for their relief, for it is this very class of patients that become habituated to its use. It has been my observation that hot water injections aggravate the trouble instead of lessening it, and in several instances I have seen marked benefit result from the use of cold water injected into the rectum, although, of course, I could not suggest this as a general

rule. I wish to reiterate what I have said before—that, of all agents to prevent rectal trouble as a class, cold water will be found the most serviceable. “This especially applies to congestions, inflammations, atony, hæmorrhoids, both external and internal fistulæ, etc.”

PROCTITIS, OR INFLAMMATION OF THE RECTUM.

INFLAMMATION of the rectum, like other phlegmasiæ, may arise traumatically or idiopathically, by contiguity of structure or continuity of surface. As an idiopathic disease, or as a disease the origin or exciting cause of which is not always obvious, such as the presence or extension of other disease, the lodgment of foreign bodies, operations, etc., acute inflammation of the rectum, it may be said, is rare indeed. Prolonged sitting upon a cold or wet seat has been known to produce it in some instances, as also has the excessive use of drastic purgatives, such as aloes and gamboge. The acute symptoms are very much like those of acute dysentery, which disease, doubtless, nearly always extends to the rectum, causing the characteristic symptoms of weight, tenesmus and straining at stool.

Few writers devote any time to the discussion of proctitis as a disease *per se*, for the reason that it is usually considered as a part or the result of some other disease, which suggests both the cause and treatment. The object of introducing the subject at all is to call attention to what is sometimes called chronic proctitis, irritable rectum, or rectal catarrh. The condition referred to is not a sequence of acute proctitis, as indicated by the term chronic, but is an independent disease, one that has had no acute stage. Subacute would probably be a more fitting term to use. The rectum appears sore and irritable, although the bowels are usually constipated. The bladder, the prostate in the male and uterus in the female, may be affected through sympathy, and a tired feeling is usually reflected through the hips and down the limbs.

There is another and sometimes a very annoying condition to which I wish to call attention here, a condition which seems to have been entirely overlooked by writers on rectal disease, and is often a

very difficult one to relieve. I refer to what appears to be nothing more than a profuse perspiration about the anus, but from the fact that it responds more readily to internal than external applications, I am beginning to believe that it is a species of rectal catarrh. The patient's health and habits are usually good, and the bowels regular. Unlike pruritus ani, the exudation occurs more during the day than at night, and is not preceded, accompanied or followed by itching.

A distinction should be made between subacute or chronic proctitis, and rectal catarrh. In subacute or chronic proctitis, the mucous membrane will always be found congested and thickened, heightened in color and sensitive to the touch. In catarrh it is sluggish, pale and irresponsive. Chronic proctitis may result in infiltration and a diffuse thickening of the rectal wall, and may end in ulceration, either deep-seated or superficial. Rectal catarrh is confined to the secretory cells of the mucous membrane, like leucorrhœa, does not result in destruction of tissue and has no reflex symptoms. Inflammation may end in catarrh, but the reverse is doubtful. Neither condition as a simple or an uncomplicated disease can be said to be at all common.

Carbolized or boracized hot water irrigations, injections of prepared hot corn starch, slippery elm water, etc., together with iodoform, bismuth and opium suppositories, are indicated in acute proctitis. The treatment of chronic or subacute proctitis is similar except less palliative. Hydrastis, pinus canadensis, and solutions of nitrate of silver, the same as is recommended for simple ulceration, are the principal remedies in this form of the disease. While rectal catarrh from its nature calls for a more stimulating treatment, the same class of remedies are used, such as hydrastis 1 to 4, white pinus canadensis 1 to 6, nitrate of silver, tannic acid preparations, etc.

IMPACTED FECES.

A STUDY of the anatomy and physiology of the alimentary tract shows that the ingesta meets with delay at all of the flexures, and that the flexures are therefore the chief foci of disease; that the three places at which fecal impaction is most likely to take place are the cæcum, the sigmoid flexure and the rectum; that of these the principal one is the sigmoid flexure; that the rectum never was intended and never does in its normal state act as anything more than a temporary receptacle for the feces; that the daily accumulation takes place in the colon at and just above the sigmoid flexure; and that the flexure not only supports the fecal column and prevents its rapid descent, but serves to mold the stool preparatory to its deposit in the rectum.

From the size, shape, position, and office of the sigmoid flexure, it is only reasonable to conclude that impaction is much more liable to take place at that point in the alimentary tract than any other, and also for the same reasons that it would be a favorite seat for other forms of disease. Such, however, does not seem to be the case, although Professor Mathews strongly holds to such views. We know that the common seat of benign disease in the lower part of the large intestine is in the rectum, and the last inch at that, or at most the last three or three and a half inches; that fecal impaction is by no means common, and that when it does occur we look for and most frequently find it in the rectal pouch. The only explanation which I can give of this apparently wise provision of nature is that the feces as a rule are softer above the sigmoid flexure than they are after they have passed through and remained in contact with the rectal walls for a time, where absorption is rapid; that the flexure is not provided with sphincter muscles, and that even if the feces should become dry and hard in that part of the canal, the pressure from the accumulation above forces them through and into the more capacious pouch below. On the other hand, if the accumu-

(203)

lation begins in the rectum, the feces become dryer and more firmly compressed at the bottom as they are reinforced from the top, and no portion of the mass can work off without relaxation of the sphincters, which, in instances of this kind, are inclined from constant titillation or pressure to spasmodically contract, leaving the rectum powerless to relieve itself, even if it were not paralyzed and rendered inert from overdilatation.

It is well known that, in health, as soon as the daily apportionment of feces descends through the sigmoid flexure into the rectum, it immediately excites a desire for a movement, and that this habit with some persons occurs with clock-like regularity. Should nature's calls pass unheeded, and the rectum not be evacuated at the proper time, or if from any other cause, such as exists in the constipated habit, an accumulation is allowed to take place and remain for any length of time, there is danger of impaction. An impaction differs from an accumulation in that the feces become united into one solid mass, and in some instances appear almost as hard as an intestinal concretion. While an accumulation can be expelled in the regular way an impaction cannot. The mass must be broken up, and this can only be done under general anæsthesia and after the sphincters have been well dilated. The after-treatment consists in hot water douches for a time, and the injection of such other remedies into the rectum as are designed to give tone to the muscular coat.

Injections of oil through a Wales' bougie and hot water flushings, together with gentle massage of the part, will have to be relied upon to dislodge an impaction in the sigmoid flexure.



FIG. 76. Scoop for the removal of impacted feces.

CARBOLIC ACID.

ASIDE from the established reputation of carbolic acid in aseptic and antiseptic surgery, it being preferable to bichloride of mercury because of the danger from absorption of the latter and its damaging effect to instruments, and aside from the wide range of usefulness of carbolic acid in the treatment of rectal diseases, it has other uses which make it worthy of special mention.

The cauterant, local anæsthetic, antiphlogistic and antiseptic properties of carbolic acid are not found combined in any other single remedial agent, and are properties which explain, I think, its superiority over any other remedy for many of the purposes for which it is recommended.

Carbolic acid is fast superseding iodine for the radical cure of hydrocele. The chief claims are its certainty of action, entire freedom from pain and the mild grade of inflammation produced. All liquid is first drawn off through an aspirating needle and about 30 minims of the acid (full strength) are injected into the sac. The first effect is to cause swelling, which soon subsides. In fifty cases operated upon by Prof. John A. Wyeth, of New York, only two cases were not cured by the first injection.

Dr. D. D. Bramble, Cincinnati, Ohio, recommends the injection of pure carbolic acid for the cure of "housemaid's knee."

Dr. O. H. Allis, of Philadelphia, in the *Polyclinic*, says: "It will strike many of you with astonishment when I say that it would be safer to pour a gallon of pure carbolic acid into a purulent thoracic cavity than to pour in a gallon of water into which a single ounce of carbolic acid has been placed. I will go even further, and say that excess of the strong acid in a cavity such as an abscess cavity, or upon exposed tissues, as a burn or a fresh wound, does no harm, while excess of a dilute solution, if left in a cavity or used over an extensive raw surface, will be promptly followed by dangerous, if not fatal, toxic effects."

The injection of two or three drops of carbolic acid into the center of a boil, is said to abort the boil in every instance. A

felon may be lanced without causing pain, by first dipping the finger in a 15 or 20 per cent solution of carbolic acid and waiting from three-fourths to one hour.

Dr. F. Roys, of Salt Lake City, informs me that he injected 30 minims of the solution recommended for hemorrhoids into a tumor located in the breast, with no other effect than that of causing temporary pain and swelling. He had expected to destroy the tumor by producing a slough, the same as is done in the removal of hemorrhoids, but to his astonishment neither sloughing nor supuration followed, the tissue, being dense, was not permeated, and the injection acted temporarily as a foreign body, doubtless leaving a callous.

ANTIDOTES.—It is claimed that any of the soluble sulphates will completely antidote an overdose of carbolic acid, forming a harmless compound (a sulpho-carbolate).

Both glycerine and acetic acid are antidotes to the immediate local effects of carbolic acid. Any one who has spilled carbolic acid on his finger or hand, knows that it leaves a white track, which is soon followed by a certain degree of numbness and a tingling sensation, and if there be an abrasion of the skin, pain. If glycerine be applied to the surface, the pain will immediately cease, and the numbness and tingling sensation will not occur. Acetic acid has the same power and will do a little more. It will destroy the carbolic acid odor, and restore in a short time, by gentle rubbing, the natural color to the skin. How long it is safe to wait before applying either of the antidotes mentioned, I am unable to say, having never carried the experiment to the extent of much delay.

COCAINE.

THE use of cocaine for the purpose of producing local anæsthesia in the treatment of diseases of the rectum and anus, renders painless and makes easy many little operations, which could otherwise be performed only with extreme difficulty.

The alarming toxical effects which sometimes, though rarely,

follow the injection of even the smallest quantity of a solution of cocaine into the tissue, have caused the utmost caution to be exercised in relation to its employment.

For the prevention of these toxic effects, Dr. Gluck recommends the addition of a few drops of phenol (carbolic acid) to the solution, claiming, after a year's trial, that the solution will not only be preserved and its anæsthetic action increased, but that no evil consequences need be feared from cocaine absorption. Also that there is an absence of congestive reaction, and the solution is rendered aseptic. His formula is:—

R. Phenol.....gtt. ij
Distilled water.....ʒj

Shake until the solution is perfect and then add cocaine, gr. x; makes a little over 16 per cent solution, which is about the most desirable strength for rectal and anal surgery.

I have always added a small quantity of carbolic acid to my cocaine solutions, and have never been chagrined by nor called upon to combat any of the toxical effects of the drug; but thought it due more to good luck and caution than anything else.

The unfavorable action of cocaine on the heart is antidoted by the inhalation of nitrite of amyl.

FORMULÆ FOR THE HYPODERMIC TREATMENT OF HEMORRHOIDS.

Dr. Shuford:—

R. Sodæ bibor.
Acidi salicyl.....āā ʒi
Glycerinæ.....ʒi
Acidi carbol.....ʒiii

Misce. Inject from 3 to 5 drops into small tumors and from 8 to 10 or more in large ones.

The advantages claimed by Dr. Shuford for his combination are that it is comparatively painless, causes no accidents and is eminently successful; that the hypertrophic tissue atrophies and is thrown off, leaving a smooth, healthy mucous membrane.

A physician informs me that he has used Dr. Shufford's combination with good results in a number of cases, but that in three instances it inflamed the tumor and created considerable pain, which prolonged the treatment, and in one instance the local disturbance became so great that, using his expression, the tumor "ploughed its way out," which confined the patient to his room for five weeks.

Dr. Hoyt:—

R. Acidi carbol..... ℥ L xxx

Ext. hamamelis (Pond's).

Aquæ dest..... āā 3vj

Misce. Makes a ten per cent solution.

Concerning the application of his solution, Dr. Hoyt says: "Introduce the needle so that the point will rest at about the center of the growth, pressing upon the piston gently, so as to void but a drop or two at first, waiting for the diffusion, which is indicated by a slight show of paleness upon the surface, resting the application when the general light color is attained, not pronounced, but just enough to prove the distribution uniform. This is accomplished without any pain, beyond a wave-like sensation, denoting a feeble knowledge of something being done. *If there is a marked pain, you have invaded some tissue foreign to the range of this treatment.* The muscle, acting as a temporary clamp, confines the solution to the tissue influenced, the restriction lasting long enough to insure a fixed union of the acid with its affinity, hence the safety of its action as to involving any adjacent structures. Anything injected into living tissue travels in the direction of the least resistance, and as" hemorrhoids are extremely delicate in structure, while the deeper tissues "are more dense, the element of danger is entirely banished, barring the want of skill in execution."

Dr. Green (a traveling pile doctor):—

R. Acidi carbol..... 3j

Creosoti..... gtt.x

Acidi hydrocyan..... gtt.j

Olei olivæ.... 3j

Mix and unite by heat in a water bath. Inject enough to turn the tumor an ashen gray color.

The creosote and hydrocyanic acid in Dr. Green's formula are nothing more than rubbish.

Rorick:—

R. Acidi carbolici.....	40 per cent
Fl. ext. ergotæ.....	15 "
Glycerinæ.....	15 "
Aquæ dest.....	30 "

Misce. Inject from 2 to 10 drops.

Brinkerhoff:—

R. Acidi carbolici.....	ʒj
Olei olivæ.....	ʒv
Zinci chloridi *.....	gr. viij

Misce.

Largest piles.....	8 minims.
Medium piles.....	4 to 8 "
Small piles.....	2 to 3 "

Powell:—

R. Acid. carbol. (crystals).....	gr. xiiij
Tr. thujæ (Homœop.).....	ʒj
Aq. dest. q. s. ut ft.....	ʒss

Misce. Inject from 4 to 12 drops.

Overall:—

R. Acid. carbol.	
Fl. ext. ergotæ.	
Ol. olivæ.....	āā

Misce. Inject from 3 to 8 drops.

For fistula (Overall):—

Irritate the canal with a probe and inject into it a 95 per cent solution of carbolic acid. Wash out the rectum after each stool with warm water, and at bedtime inject white pinus canadensis 1 dr. to 2 oz. of warm water. The injection of the acid is to be repeated every two or three weeks until a cure is effected.

For fistula (Powell):—

Irritate the canal with a probe and inject into it Sanders' eucalyptus, full strength. The next day inject a 75 per cent solution of carbolic acid.

*An unnecessary irritant.

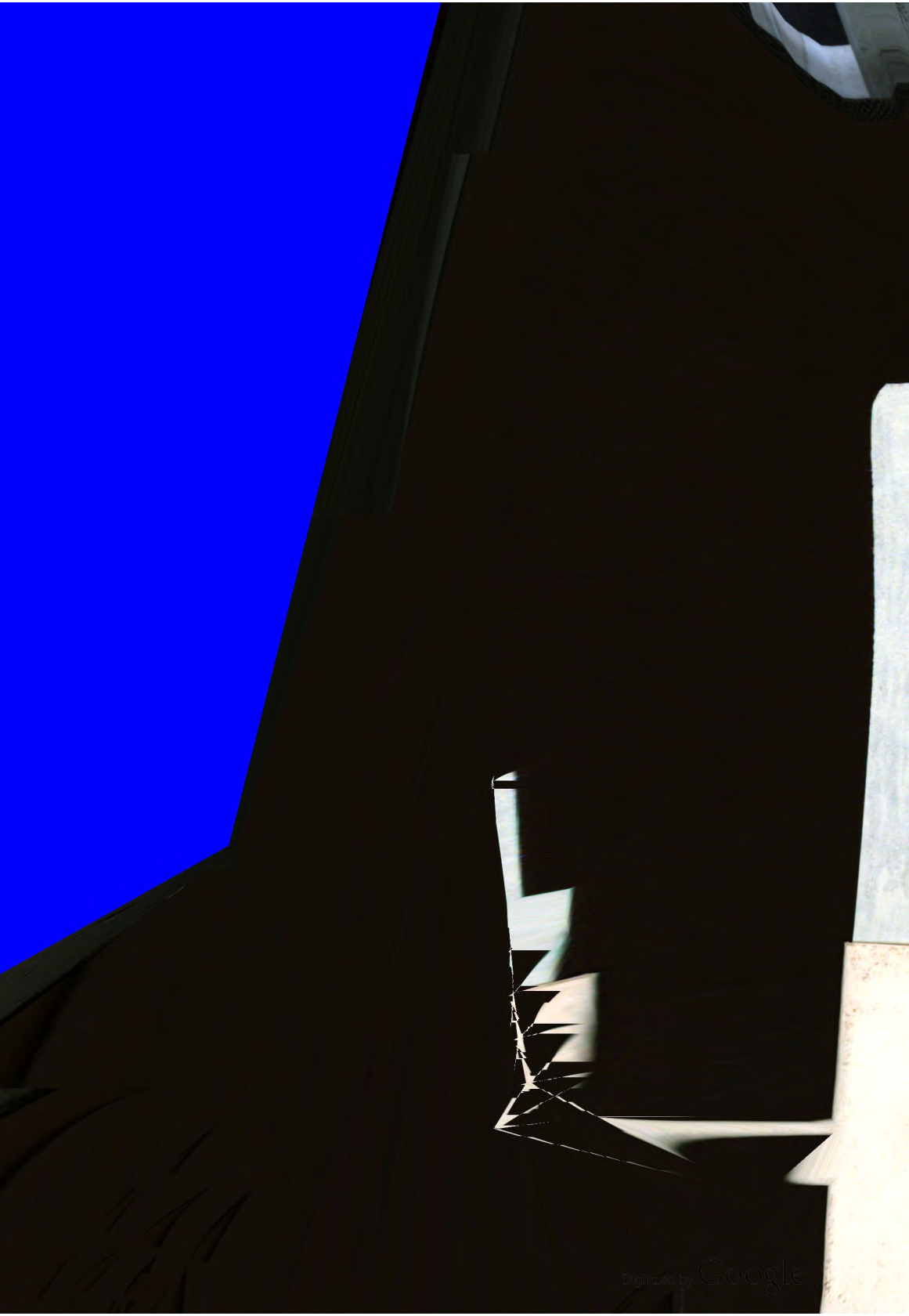
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Hemorrhoids and other non-malignant
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